

Field Book
of
W. L. Jepson.

If lost, finder please return to
W. L. Jepson, Berkeley, California
and receive reward. [2714 Ben-
venue Ave.]

General Note to User

The locality given in the running head with its date applies to the numbers below on a given page or pair of pages. Cautions must be used. A special locality may be written against a particular no. at the beginning or end of the note for that number.

Berkeley to the Salinas Valley 1

Apr. 5, 1920.

- Left Berkeley about 2:45 o'clock, Monday. Took my sister Josie with me who is to travel to friends at Los Angeles. The fields about Centerville were wonderful blue, a deep blue, with the flowering of *Phacelia ciliata*. Picked up the camp equipment of H.A. Dut. ton at San Jose. Camped the first night in the little oak grove on the first river bench at Sargent. The oak trunks have been terribly mutilated by campers and automobilists. Next day, on to San Juan Bautista where David Douglas was stopped. There is an old building, now added to as the Plaza Hotel, which was built in 1792. The arcade of the Mission and the church itself are in excellent preservation. The church is disfigured by an ugly and very cheap wooden tower. There are several old buildings about the Plaza.

Salinas Valley

- *Oenothera orata* Nutt. On the pastured above San Juan (Gabilan Range) the fields are yellow with the flowers of this species which is now coming into full anthesis. I have never before seen so much of it. It covers thousands of acres and spots of it are quite yellow, so dense is the growth. These slopes are not plowed and its deep-seated storage roots like a carrot protect it fully against cattle. Its pods lying so low are not injured either.

No. 8429. *Oenothera orata* Nutt.

San Juan, San Benito Co.

- We cross the Gabilan Range, run down into the Salinas Valley, up which we drive. Every mile or less we see fields full of poppies; then they grow more dense; the poppies form shimmering lakes of gold under the bright white sunlight. These lakes

Apr. 6. 1920.

vary from 20 to 30 or even 50 or 100 acres, running out often into vague shallow merging with the green but sometimes sharply defined, sometimes mere pools (or 2 or 3 acres). This continues all the way, at intervals of $\frac{1}{2}$ to 2 or 3 miles past Chualar, Gonzales and Soledad. The apron fans at the mouth of the San Luis Canyon bear in a similar very gorgeous blot of yellow. Some great fields have Cream Cup areas or zones of ^{white} color mixed with the ^{yellow} color. It is wonderful. I never before saw so many or extensive areas covered with *Eschscholtzia californica*.

- Turned off the main road and drove to Mission Soledad. Its ruined walls are still sufficiently in evidence to show what an extensive mission establishment it once was. It lies on the banks of the Arroyo Seco,

Mission Soledad, 170 ft.
Monterey Co.

The land rising a little so as to give it something of a prospect over the valley floor. About the mission now is a thickly settled dairy district.

No. 8430. *Capsella bursa-pastoris* Moench. Within the purlieus of the Mission Soledad precincts.

No. 8431. *Chorizanthe polygonoides* Nutt.

Sandy rid of the Arroyo Seco near Mission Soledad.

No. 8432. *Orthocarpus purpurascens* Benth. With 8431.

No. 8433. *Baeria*

With 8431.

No. 8434. *Phacelia douglasii* Bth.
With 8431.

No. 8434a. *Gilia tenuiflora* Bth.
With 8431.

No. 8435. *Layia glandulosa* (Hook.) N. & A.

Rays yellow, 8 or 9. With 8431.

No. 8436. *Monolopia*

Argus Sta. near King City. Very

abundant, making spots of yellow.

No. 8437. *Dipsacis douglasiana* A. D. C.

Mission San Miguel, Apr. 6, 1920. 5
San Luis Obispo Co.

With 8436.

- Running on up the Salinas River valley the color spots were made mostly by *Baeria* and *Platystemon*. Spring flowering is in full swing and the country is very beautiful.

No. 8438. *Phacelia ciliata* Bth.

With 8436.

- We pass thru San Ardo and stop for just a few moments to view the mission at San Miguel.

We camp in a grove of oak trees on a bit of mesa overlooking country eastward. All the way from San Miguel to Paso Robles the country east breaks down into very low hills or valleys and one for the first time in running up the valley has a far view eastward.

- The night is clear and beautiful, but by 6³⁰ am. the next day ^{high} fog is over all and it is keen and cold.

6 Paso Robles to Mission Santa Inez.

San Luis Obispo Co. 622 ft.
no. 8439. *Physanocarpus curvipes* Hook.
San Miguel, 622 ft.

no. 8440. *Viola pedunculata* T. & G.
Paso Robles. Very common all the way to Santa Margarita, 1000 ft.

no. 8441. *Flarckea douglasii* Baill.

Santa Margarita, 1000 ft.

no. 8442. *Convolvulus cyclastegius* House.
Common and very showy on banks near the ocean a few miles s. of San Luis Obispo; i.e. near Pismo.

no. 8443. *Astragalus pomonensis* Jones
Pismo.

no. 8444. *Artemisia spectabilis* F. & M. with 8443. No vest. Stamens in throat. = var. *microcarpa* (Greene).
- We pass across the Santa Maria River Valley thru Santa Maria town and finally run easterly to Los Olivos.

no. 8444. *Viola pedunculata* T. & G. - Los Alamos.

- Cont. no. 8443. Cor. white; banner narrow, notched at tip, the sides

April 7, 1920.

of the notch embracing the very tips of the wing petals. Keel shorter, but only slightly shorter. Stems several from a central root crown, prostrate, then ascending, 2 to 3 ft. long.

- Cont. no. 8441. *Flarckea douglasii* Baill.
Petals white, a pure white, strongly 2-nerved towards the base, the later-

al nerves for a short distance bearing a single row of densely set short hairs.

- Cont. no. 8444. This forms large spots of color. The corollas are very large and a bright orange yellow.

- From Los Olivos on our way to Mission Santa Inez we make an unnecessary detour to Santa Inez town. Mission Santa Inez is in a fine state of preservation as to the main church and the cloisters. Much of the old establishment beyond this is in ruins. The monks in charge are rather pious expressed much annoyance that the name Santa Inez

had been transferred to Santa Inez town, three miles away and that he had vainly petitioned the postoffice dept. to correct the abuse. Why, he said, new Santa Inez is only four years old. In this he must be in error since it is shown as a considerable town on my 1905 U.S. topographic map. Santa Inez the new town seems to be the real town, as far as inhabitants are concerned. That is it has a Spanish and Indian quarter where we find old men who cannot speak English. The "town" at Mission Santa Inez seems to be wholly new and is evidently composed of shops and garages ministering to tourists. Mission Santa Inez was founded in 1804. — We run on down from the eminence, on which the mission is finely situated, into the fertile Santa Inez River valley, cross the river and go up Aliso cañon and

camp for the night. Next morning on up into Garibaldi Pass of the Santa Inez Mts. The pass is low, only about 1000 feet alt. We run down Garibaldi Pass towards the Pacific Ocean and collect:

No. 8445. *Plagiobothrys canescens*
Det. R. F. H. Bth.
Los Alamos, Apr. 8. Valley flat.

No. 8446. *Layia platyglossa* (F. & M.) Gray, ssp. ^{consistens, Hook.}
Raye orange-yellow, with white tips.
Hills yellow with this plant. Los Alamos.

No. 8447. *Taschneria*
Common. with 8446.

No. 8448. *Plagiobothrys nothofolius* Gray
Los Alamos. Strictly erect, while 8445 is a little spreading. 8448 on hills, 8445 on f.

No. 8449. *Nemophila aurita* Lindl. (flat.)
Fls. a very beautiful deep

purple; showy. Los Alamos. Creek bank. = *Ellisia aurita* Jepson.

No. 8450. *Microseris heterocarpa* (Nutt.) H. Chambers
Hills (open or barren) near Mission

Santa Inez.

— *Orobanchus purpurascens*. Hills laid with its cloth. of purple. with 8450

Dichlostemma multiflorum (Benth.) Heller
 no. 8451. ~~*Dichlostemma*~~ *capitata* (Benth.) Heller
 Gaviola Cañon near the ocean, Santa Inez Mts.

No. 8452. *Solanum douglasii* Dunal.

Corolla white but lavender-tinted; its 5 ovate-lanceolate lobes spreading star-like a bit. The corolla is very deeply lobed; it looks not at all like the *S. umbelliferum* type and in general appearance is quite as unlike *S. nigrum*. It forms a bushy plant 2 to 3 ft. high and is now very showy. It is quite woody below. I notice it also at Santa Barbara. The style is conspicuously exerted from the yellow anther-tube which is very showy.

No. 8453. *Vegetaria*

Rays about 20, yellow. Involucre in 2 rows, ovate. Bush 2 to 3 ft. h., common. Also very common all the way from the coast as far at least as Sonris on the borders of the Simi Valley.

1000 ft.

in Ventura Co. *Laptodactylon*
 no. 8454. *Gilia californica* Bth. Cor. ^{rose} purple or better say deep pink. Very showy; border wash. cont. p. 32.

No. 8455. *Pectocarya linearis* DC.

This borage grew in hard sandy soil.

No. 8456. *Isomeris arboria* Nutt. Bush 3 ft. h., common thru all the coast country.

No. 8457. *Oenothera biortata* Nutt.

The young ^{"stamens"} plants are the early flowering or early vernal type; the large plant is the later flowering type.
 - Proliferous flowering, due to seasonal conditions, the acaulescent state first, the flowers produced from the summit of the root-crown. This may be the only flowering, as often the case with *Oenothera graciliflora* (no. 8457), or there may be stems radiating profusely from beneath this terminus flowering as shown by the caulescent plant under no. 8457. These proliferous stems are prostrate in this case.

1000 ft.

Usually they are prostrate or ascending in species of this generally.

No. 8458. *Rumex hymenosepaloides* Torr.

Very common thru this coast region of Ventura Co.

No. 8459. *Orthocarpus purpurascens* Benth. Hill slopes.

No. 8460. *Cryptantha intermedia* Greene.
With 8459

No. 8461. *Salvia*
With 8459.

No. 8462. *Lamarckia aurea* (L.) Moench.

This grass grew in hard sandy soil.

No. 8463. *Pentstemon centranthifolius*
Hard sandy soil. Cont. p. 32.

No. 8464. *Solanum umbelliferum* Sch.
With 8463.

No. 8465. *Salvia mellifera* Jepson.
Bush 2 to 3 ft. h. Santa Susanna Pass. 1600 ft.

No. 8466. *Lotus strigosus* (Nutt.) Greene.
Decumbent. Santa Susanna Pass.

No. 8467. *Sanicula arguta* Greene.

Santa Susanna Pass, 1600 ft.

No. 8468. *Convolvulus occidentalis* Gray.

Santa Susanna Pass, 1600 ft.

No. 8469. *Helianthemum scoparium* Nutt.
var. *vilgare* Jepson.

Santa Susanna Pass.

Nos. 8470-8478 not used.

- Simi Valley is well-wooded with oaks, the *Quercus lobata* being very prominent. This is probably the last Coast Valley southward where it is found. As we cross over the Santa Susanna Pass and go down into the San Fernando Valley I meet the valley oak again. It occurs on the high ^{az.} side of the valley in deep rich soils - rather fine trees.

We run on thru the valley and pass thru a cut in the hills to Hollywood, thence to Los Angeles, where I leave my sister and go on down to Oceanside where I am joined by H. A. Dutton for the trip into the Colorado Desert.

As we came down the hill from Oceanide into the valley of the San Luis Rey River the San Luis Rey Mission showed up finely on a little eminence or rather bit of rising ground in the valley overlooking the San Luis Rey River. ^(Cont. p. 18) The founding padres picked out a fine & slightly elevated situation as usual. The mission buildings fell badly into decay but have been restored. The church front and walls and cloisters are in much the original condition. The whole edifice is more pleasing and in a way more imposing than any other mission now in a state of preservation it seems to me. We enter the graveyard and pass into the church by a door on the east side of the church thru a little chapel whose walls are hung with some

excellent paintings. Then into the church itself. The walls are some 6 feet thick and about 45 or 50 feet high. It is remarkable how well lighted is the church in the absence of what we are used to ^{regard} as regular rows of tall church windows. The light comes thru a comparatively few high embrasure-like windows which are set high. The walls are decorated in blue and red patterns ^{quant and primitive} after the original style. The altar has four large figures at the corners ^{those} the lower left and right being of the original church. A good many modernizations have come in: cement floors, wooden tongue and groove 4-inch ceiling, electric light. If Father Junipero Serra should come along and lean against a button he would be a bit startled by the electric bulb. The series of arched columns were once very extensive and are now mostly

to be faced by mere mounds - but the arches themselves were built of brick and these tend to stand while the outer walls behind them want down.

No. 8479. *Lepidium virginicum* L.

River valley near the Mission San Luis Rey.

We drive on thru a pretty country to Pala Mission. The mission building itself is in a fair state of preservation but is a modest 1-story structure. The place is given a certain dignity and not a little beauty by the hill-tower, an exquisitely simple structure with a rather rude but massive cobblestone base, but the whole proportions very pleasing. Pala Village is a collection of small cottages meant for the housing of the Indian families of the Pala Indian Reservation.

- We continue to follow up the San Luis Rey River, at this time a rather

758 ft.

San Diego Co.

large stream (its waters a turbid red-brown flood, yet nowhere beginning to fill the great wash of the river) and camp in the wash of Pauma Creek.

No. 8480. *Chorizanthe staticoides* Benth.

Wash. Quite prostrate.

No. 8481. *Eryptanthus intermedia* Greene. Wash of Pauma Creek. Abundant.

No. 8482.

This gnaphaloid plant grew in the wash of Pauma Creek.

No. 8483. *Dichelostemma multiflorum* (Benth.) Heller ~~*Dracopis capitata*~~

Plants very tall, growing in the protection of other coarse plants. Stems 6, 3 with smaller anthers. Large anthers with 2 lanceolate appendages; anthers sagittate.

No. 8484. *Lupinus longifolius* Abrams.

Corollas blue; center banner yellowish with a little white, fading eventually to a sordid blue. Flowering shoots from a woody stem about 6 or 9 inches high; plants $2\frac{1}{2}$ to 3 ft. tall. Keel

densely pilose ciliate. Wash Pauma Creek.
No. 8485. *Lupinus longifolius* Abrams.

Like 8484 in every particular (even to the purple tipped keel) save in the color being pink. The pink is a delicate and very beautiful pink, perhaps lavender-pink would hit it. It is certainly a most lovely color.

No. 8486. *Layia platyglossa* (F. & M.) Gray Ssp. ^{compositus} ^{rich}
Very common. Rays yellow, the tips white. Bristles of pappus ^{at base} densely woolly, on the inside forming to the eye a sort of inner pappus; on the outside at base with a few short bristly hairs?

No. 8487. *Othocarpus purpurascens* Benth.
Sandy wash.

- Mocking birds are singing in the taller shrubs about camp.

[Cont. from p. 14. As one raises one's eyes to the mountain beyond one sees backing the Barther ranges and towering high in air the great snowy peak of Mt. San Jacinto. I had never

realized that San Jacinto made so noble and lofty a stand in the sky. Seen from other directions he is a fine mountain but from this direction the view is imposing. Across the blue-haze gap of the San Geronimo Pass rises finely his brother, Mt. San Geronimo, topping the long bulky mass of the San Bernardino Mountains and well outlined even at this distance because so heavily banked with snow.]

- Our camp in Pauma Creek wash is a pleasant camp with a fine outlook in many directions. Agua Tibia Mts. rise northward. We ask a young Indian-Mexican who comes along the meaning of tibia. He says: "Not hot, not cold". So Agua Tibia is the lukewarm water. An American comes along, walking, and we talk with him. He has come down from Palomar Mt. just east. On its higher hollows are sea pines. Dutton picks up (Cont. p. 22)

no. 8487a. *Pentstemon antirrhinoides* Bth.
4 to 8 ft. h. with woody trunk up
to 4 or 5 ft. h. or more, up to 1 inch
in diam. with shreddy bark. Cor. yel-
low; upper lip broad, strongly arched,
notched, the two pairs of stamens
arched under it. Lower lip with the 3
lobes spreading and about equal.
Sterile stamens densely ^{filose-}woolly on
upper side towards apex. Style
glabrous. Pala Mission.

- Greasewood. A leaf applied to *Ceanothus*
species in Oregon acc. to Mrs. H. A. Burton says H. A. D.

no. 8488. *Pentstemon spectabilis*
Shumaker Cor. of general style of *P. heter-*
ophyllus. Lobes about equal, the 3
lower rhomboidish, very obtuse or
primate, spreading. Upper lip
deeply cleft, its lobes slightly re-
curving. Sterile stamens glabrous.
Style glabrous. Cor. lobes royal blue-
purple, with red-purple throat and

tube. Pala Mission. About 8-12 pairs leaves con-
nate-perfoliate. Cont. p. 32.

no. 8489. *Lathyrus splendens* Kell.

Corolla crimson, changing to dark purple,
then sordid finally. Climbing bushes in
the wash, up to 3 ft. h., very showy.

Panna Wash.

no. 8490. *Lupinus sparsiflorus* Bth.

Fls. blue, the white banner spot changing
to a deep but bright red-purple. Panna
Wash. Both sheets represent plants
taken clear to the ground.

no. 8491. *Plantago*

Sandy soil, Pala Mission

no. 8492. *Leptosyne* (Discarded, insect
damaged)

Sandy soil, Pala Mission.

no. 8493. *Diplazium* ^{Det. A. L. G.}
m. paniculatus (Nutt.) Steud. *m. longiflorus* (Nutt.) Graeb. x

Cor. dark or almost bloody red. Sandy soil,
Pala Mission.

no. 8494. *Ceanothus divaricatus* Nutt. See

p. 198. Stems many from base, forming
a clump 12 ft. h.; bark smooth, gray;
fls. a light but delicate lovely blue.
Leaves light-green, especially below.

Cont. from bottom p. 19. — up in the wash a cune of *Pinus ponderosa* which came down from the mountain and a cone of *Pseudotsuga macrocarpa*.

All passers-by tell us we cannot ford the San Luis Rey River with a machine by reason of the quicksands. The Palman man tells us that the current will turn the machine over in this way. The hind wheels sink, the water piles the sand up on the wheel on the up stream side and gauges out the sand from the wheels on the lower side, so that the latter wheels continues to sink and the pressure from the upper side turns the automobile over. Dutch wants to go ahead since like most Americans he hates to turn back and besides he is always for the adventure. On the other hand I want to get to the desert without fooling around a day in the San Luis Rey

river bed and we decide to go back to Bonsall, cross the river by the bridge and go around by Escondido.

No. 8495. *Phacelia parryi* Torr.

Cv. rotatish, a deep royal-purple with 5 rather large lacy-yellow spots on base corolla or near base tube, so,

...lacy with a sharp purple indent at base.
...purple

As we drove along the road Dutka saw this first; its color caused him to say we were passing Larkspurs.

Pala Mission.

No. 8496. *Phacelia hispida* Gray.

Very abundant in rocky brushy country.

Cv. lavender. Pala Mission.

No. 8497. *Apiastrum angustifolium* Nutt.

Pala Mission. Sandy soil

No. 8498. *Stylocline graphaloides* Nutt.

This graphaloid plant grew with 8497.

No. 8499. *Microseris linearifolia*

This cichoriad grew with 8497.

- ✓ No. 8500. *Phacelia distans* Benth.
 Cont. p. 32. Rather rare. Grew with 8496. Cor. deep
 blue.

✓ No. 8501. *Mirabilis*

Fls. red, changing to purple. Very
 common. Pala Mission.

✓ No. 8502. *Glaucantheris*

Sandy soil, Fls. yellow.

✓ No. 8503.

This composite grew with 8502.

— Dutton remarked that I had gone
 away a little earlier than usual from
 the University. I replied that this year
 was so unusual that I had arranged
 the lab. and lecture work in such
 a way as to leave. Well, he replied,
 when we were boys and especially
 longed for the open and the birds
 and rabbits we said:

"Oh, come along!

Soldiering doesn't hurt;

Licking doesn't last;

And killing they doesn't!"

— By good roads we reach Esccondido, a
 considerable well-built village of the
 back country; secure some supplies and
 gasoline; attend to mail; and go on
 easterly over low hills and run down
 into the Pasqual Valley where Kearney's
 forces were defeated by the Mexicans
 in 1846. It is a small but fertile,
 well-watered, and attractive valley,
 through which runs the Santa Ysabel
 Creek, a stream which comes down
 into it from a great cut in the
 mountain range East. Our grade
 follows up this pass and on these
 mountain slopes I note the fol-
 lowing as common:

Black Sage (*Salvia mellifera* Jepson.)

White Sage (*Salvia apiana* Jepson.)

Rhus ovata Wats. (8-12 ft. h.), in fl.

Pentstemon antirrhinoides Bth.

Rhus diversiloba

Ceanothus crassifolius (shiny upper
 side to leaf, glandular-serulate)

Samolus oliganthus Nutt. The bush shows only the dark green upper side to its leaves, the white-woolly under sides not noticeable until you turn up a branch.

Plantain racemosa - common along stream.
No. 8504. *Diplocis longiflorus* Nutt. x *D. pumila* Nutt.
Cor. pale yellow; white patterns in throat.
Det. A. Z. G.

No. 8505. *Eneoridium dumosum* Hook. f.

Fls. 4-merous; petals white, obovate, obtuse; filaments dilated strongly; ovary globose, the style lateral (arising from the base), flat, with globose stigma. Ovary green, resting on a pinkish, cylindric disk. Odoor very heavy and ^{pleasant} disagreeable, something like a mixture of very raw turpentine and bruised dry-fennel foliage. Bush 2 to 3 ft. h. Leaves pellucid-dotted. Berries resinous - punctate, green, now becoming rosy-red on one side.

No. 8506. *Arctostaphylos bicolor* Nutt.
Leaves dark shiny green above,

white class-woolly beneath, thick and brittle!

No. 8507. *Adenostoma fasciculatum* H. + A.

- *Quercus engelmannii*, just coming into new leaf.

- *Quercus agrifolia* Nees.

- *Artemisia*, very much like *A. californica* but not flowering.

- *Eriogonum fasciculatum*.

- *Islay* (*Prunus ilicifolia*).

i.e. south from Santa Isabel Creek,

- We turn up a small lateral stream and camp in an open in the ^{yellow} ^{Clevinger Cañon} ^{canon}, pleasantly diversified with oaks and grassy glades. The next morning Outton goes out with my Winchester shot-gun. The evening before we had seen cottontail Rabbits popping into the brush and he soon returns with one which he promptly dresses.

As it lays on a tin plate he says "\$1.65 please. We paid just that for a rabbit for Sunday dinner. It-

goes against my grain to pay out money in such a way for rabbits. My standard price when a boy for Cottontails was 5 cents. No more. Five cents for Cottontails and 10 cents for ducks. I sold hundreds at Elmore."

This camp where we now are is within about 4 mi. of Ramona.

- *Rhus diversiloba* is here. It is associated with the plants mentioned above, the San Pasqual grade list, all of which are different from species associated with Poison Oak in the Sierra foothills, or species in the Coast Range, or species in the Redwood Belt. Poison Oak grows in more different associations than any other Cal. shrub and it has a wider range than any other. It grows under a greater variety of soil conditions, tho usually preferring good soils, rainfall and temperature extremes than any other Cal. shrub and is especially remarkable for

its extreme shade tolerance and its tolerance of extreme insolation.

- *Nicotiana glauca*. It is abundant almost everywhere along streams, occurring at Mission San Luis Rey and at Pala Mission and Warner; in San Pasqual Valley; along the coast at Oceanside, sometimes forming miniature forests 12-14 feet high.
- *Cotula coronopifolia*, common in moist-washes: San Pasqual Valley; Mission San Luis Rey.
- *Isomeris arborea*, San Pasqual Valley and Pala Mission.
- No. 8508. *Cneoridium dumosum* Hook f. Clevinger Cañon, 3 1/2 ft. h.
- No. 8509. *Canthium tomentosum* Parry, var. ^{olivaceum Jepson.} Shrub 6 to 7 ft. h. Clevinger Cañon.
- No. 8510. *Quercus Engelmannii* Greene Low, - 6 to 12 ft. Clevinger Cañon.
- No. 8511. *Carex spissa* Bailey. Comes into flower at 2 to 3 ft. at most high; then in fruiting ^{↑ with the culms} to culms elongate

and become slender ^{very} wands 9 to 10 1/2 feet high. Last year's stems are still present and green, still bearing the dried staminate spikes and the rachis of the pistillate spikes. These tall culms are of course perfectly naked, trigonous, with two of the angles acutish, the third blunt. These plants form a little colony in the stream bottom of the cañon and are very striking and rather pretty. The foliage is attractive, altho the edges are almost like a razor blade.

No. 8512. *Quercus Engelmannii* ^{Greene}

At the head of Clevering Cañon some large oaks come in of this species. This one is a tree 45 ft. h., 60 ft. broad crown, and girth 9 ft. 6 in.

No. 8513. *Phacelia parryi* Torr.

Cor. royal purple, the center almost velvety purple, the spots in tube white. Filaments pilose. Ramona. Ovary with a row of hairs at summit on each side midway between the placentae.

No. 8514. *Platystemon californicus* Benth.

No. 8515. *Oenothera biortata* Nutt. ^{Brown-}
Abundant in sandy soil, a purple spot at base of each lobe, sometimes the spot faint or greenish.

No. 8516. *Gilia dianthoides* Endl.

Sandy soil, its pink flowers very pretty. = *Linanthus dianthiflorus* Greene.

No. 8517. *Linaria canadensis* Dum. ^{var. texana Benth.}

Sandy soil.

No. 8518. *Senecio californicus* DC.

Sandy soil.

No. 8519. *Scheuchzeria heterophyllus* Nutt.
Sandy soil.

Eumyrtia chrysanthemifolia Greene.
No. 8520. *Ellisia chrysanthemifolia* Bth.

Cor. small, white; sandy soil. Cont. p. 32.

No. 8521. *Oenothera biortata* Nutt.

Stems erect; sandy soil.

No. 8522. *Sanicula arguta* Greene.

Stems divergent; sandy soil.

- Cont. no. 8520. Cor. short-campylobate. Stamens with 2 short yellow glands ^{basium} each pair of fil. Style and stamens included.
- Cont. no. 8521. Cor. yellow, its pet. notched or with a short point at apex.
- Cont. no. 8488. Upper side of sterile stamens towards base microscopically glandular-pub. Other stamens glabrous.
- Cont. no. 8500. Appendages of corolla expanded upward, the pair forming a sort of crest or cup-like process out of which the fil. arises.
- Cont. no. 8454. Cor. strictly salver-shaped, the tube very slender, the obovate, oblique lobes a little longer. Anthers inserted in tube just below throat. = *Leptodactylon californicum* H. & A.
- Cont. no. 8463. Sterile and fert. stamens all glabrous.
- We run on beyond Ranoma, Ranoma is a small fairly neat little place where we stop to put on in the tire. Beyond, easterly, we stop to botanize a burn. We pass and go

Apr. 13, 1920.

On over the hills to Witch Creek, a few small houses straggling in a narrow valley, with a post office. Hereabouts R. D. Alderson botanized long ago and sent his plants to Professor Greene. We run on, ascend a long easy grade and come around a corner of the hill, the valley of Santa Ysabel bursting into view. The slopes and fields are yellow, - large golden lakes - with buttercups (no. 8523) and equally great white areas snowy with the flowers of *Plagiobothrys* no. 8524. Santa Ysabel is a very small hamlet of three or four houses. It has a store. We turn northwesterly ^{thru a cañon} and finally enter San Jose del Valle, a great flat valley, - the valley of Warner Ranch.

No. 8523. *Ranunculus canus* var. ^{Ludovicianus}
Moist swales at Santa Ysabel.

No. 8524. *Plagiobothrys nothofolius*
Gray. See above. Santa Ysabel.

No. 8525. *Viola chrysantha* Hook. & Th. *douglasii* Stand. Fields at Santa Ysabel.

Quercus Engelmannii

This is common about Witch Creek and all the way to the hill slopes overlooking Santa Ysabel Valley. We meet it again just northward from Santa Ysabel - fine trees 40 to 50 feet high, with trunks 1 to 2 and even 3 ft. diam. The branches are many and straight, as in older trees very crooked. The crowns tend to be broader than in *Quercus douglasii* which it much resembles. The tree holds its leaves all winter.

As we near San Jose del Valle we find it associated with *Quercus Telloggii* which replaces it on the northerly slopes. There are however three oaks associated, the third being *Quercus agrifolia*

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of which there are fine individuals. In the stream bed within a few yards of these oaks grows *Platanus racemosa*. It is here often badly attacked by mistletoe.

On my right as we go northerly there is a fine formation of *Adenostoma fasciculatum*, its borders mixed with white sage.

The white sage is common in this country and all the way from Escondido we have noticed bee colonies in the cañons and on the hillsides. Dutton says his father had a saying of bees:

Swarm in May
Worth a load of hay;
Swarm in June
Worth a silver spoon;
Swarm in July
Not worth a fly.

- The chaparral of the hills is composed of the following

species:

Achnostoma fasciculatum
Arctostaphylos glauca (no. 8522)
Ceanothus divaricatus; leaves pale
 green ^{beneath}, so thick as to be
 brittle; fls. blue. no. 8531.

Ceanothus perplexans or a form
 of it. See no. 8532.

Quercus engelmannii scrub.

White Sage (*Salvia apiana* Jepson)

Eriogonum fasciculatum

- As we came down the hill into Baller
 Valley we had a fine view of ~~San~~^{San} Jose
 Peak. As we saw it, perhaps 15 miles
 away in an air line, it consisted of a
 summit notched into two unequal
 peaks. North slope showing snow.

- As soon as we struck the level of
 San Jose del Valle we went into camp
 for the night in a grove of Live
 Oaks (*Quercus agrifolia*). This little
 cluster of living or so trees is truly
 fine. It makes a really fine assem-

No.	Tree	I take measurements as follows:	
		Diam. at 4 ft.	Height.
No. 1		14 ft. (at 6 ft.)	70 ft.
No. 2		13 ft., 8 in.	65 ft.
No. 3		13 ft. (at 3 ft.)	40 ft.
No. 4		21 ft., 7 in.	65 ft.
No. 5		13 ft. 5 in.	60 ft.

See p. 38.

- In the evening two Mexicans passed on
 horseback. Their horses were very tired and
 have evidently traveled far. Their horses
 are trained to a little slow trot which
 they keep up all day. Dutton calls it
 the Mexican trot. It is like the trot of
 a Chinese coolie carrying two baskets on
 his burden pole.

- The next morning a mist was falling
 from the heavy fog but the crows were
 calling noisily. Ducks are in the
 stream; sand-bill cranes are spiraling
 in a close circle overhead; buzzards
 are circling; blackbirds are calling; and
 there are other birds still; and a large

bird who gets his living by picking up tadpoles in the marshy flat near the camp. He is bluish on the back and reddish on the breast or throat, and about the size of a grouse.

The grove of Live Oak trees (p. 37) which ^{we} noticed above, stand on the right hand side of the road going towards Warner's and about 100 yards northerly from the junction of the Mesa Grande road.

The chaparral formation is dense and sharply defined, *Adenostoma fasciculatum* areas forming a rather clearly segregated part of it, i.e. in distinct areas but merging or rather joining on. See p. 36

We go on to Warner's Hot Springs for mail. It is now a resort, the visitors housed in adobe cabins. It is the Agua Caliente of the older maps. San Jose del Valle is a great barren open space or valley surrounded by mountains, the oaks on all sides coming right down

to the plateau or valley level. The valley, or great flat as I would rather call it, is traversed by one or two low rolling ridges, and as said, has not a tree, except a few cottonwoods, or the fringe of wood along the San Luis Rey River. We turn back from Warner's

Springs and turn off easterly toward Warner Ranch which is reached in about $1\frac{1}{2}$ miles. The old ^{adobe} house or stage station of the Butterfield stages is still in use and in very good repair. Warner's Ranch, some 42000 acres, is owned by W. G. Henshaw.

Here we meet J. A. Ream, who lives in a large white house near Warner Spr. He is well informed on the roads to the desert and we receive valuable road directions. He has an interest in the native vegetation and inquired if there was any book on the flora of the Colorado Desert. I told him that I had begun a Flora of California and that five parts were available. He started to take down my name and stopped when he heard Jepson. Are you Professor Jepson he said? "Well", he went on, "Colonel Fletcher

has just presented me a copy of your Tree of California. How many oaks have we here. My, they are a mix-up."

Colman Fletcher is the Highway Commission man who is putting the fine roads thru the back country. All thru this back country we have traveled fine roads, and a road is now being graded from Warner Ranch thru San Felipe Valley and out into the desert by San Luis Canyon. The grading has practically reached San Felipe Valley.

- H. A. Burton says: "A. J. McClatchie taught in the grammar grades in Elsinore. He was very long-legged and since he tried to keep step with his wife who was very short-legged the effect on Elsinore streets was rather funny and we kids called them Prancing McClatchies. He had a local reputation as a botanist and was certainly devoted to botany. Both he and his wife were interested and as sure as Sunday came they were off to the fields and canyons."

- We run along the base of the hills thru fine *Quercus agrifolia* trees and finally enter southerly thru a long but relatively narrow break in the range San Felipe Valley. The valley floor is open but brush covered.

We go on nearly to the mouth of San Luis Canyon, a sharp cut in the mts. by which San Felipe Creek runs out into the desert. San Felipe Creek is a small but rapid stream. I can jump across it; and yet it required some care to get the car across it on account of sand. After we crossed we ran, as said, nearly to the mouth of San Luis Canyon, - we could see its mouth one mile away - and then turned south-westerly, still in San Felipe Valley. The Shille Sage (*Salvia cordnacea*) is more abundant here than I have ever seen it elsewhere, making spots of blue color 8 to 40 feet square and continuing for many miles. There are a half-dozen new settlers in the lower part of the valley.

out of San Felipe (cf. p. 41)
 - We climb a sharp but low rocky divide
 and go down into Blair valley, an old
 lake basin with level floor. We run
 across this and descend into Box
 Cañon, (see p. 203 infra) a very narrow cañon and very
 precipitous and rather difficult in
 spots; so rocky; even to descend. We
 finally get through it and come out
 into Mason Valley, the lower part of
 the "bongh" which runs thru the mts.
 by Julian to Santa Ysabel. There are
 settlers here. One settler, McMillan, has sunk
 a dug well 186 feet and has a good
 water supply. (See p. 203 infra).

Larrea tridentata is abundant on
 the floor and after passing over a rocky
 hill as we go easterly we descend
 into another valley, ^{Vallejo} whose mesa is
 covered with *Fourquieia splendens* in
 full bloom. It is a strange and
 yet splendid sight. The tall stems
 in vase-like clusters, mostly un-
 branched, and bearing at the top

the panicles of flowers like tongues of flame.
 The mesa is a rocky-gravelly table; the
Yuccas are rather regularly spaced -
 about 35 to 50 feet apart. The plants
 are now in full leafage, that is the stems
 are clothed with small green rosettes
 of leaves from top to bottom, and since
 the stems ^{are short} are unbranched the effect is
 peculiar. As one looks at the stems with
 the stems ^{struck by the} shining rays of the sun they give
 back a little gray; but in the other direc-
 tion they are wholly green. Stems 8 to
 13 feet high I estimate, ^{See p. 65} and 1 to 3 in.
 diam. at base. The whole formation
 is about 1 mile wide and 3 miles
 long, - making a plant society
 unusually strange and singular.
 We drop down on to a little lower
 level with ^{more} silty soil and the *Fourquieia*
splendens stops abruptly, being too
 rich a soil for it. This lower level is occu-
 pied by *Larrea tridentata* which was
 associated with the *Yuccas* above. We
 arrive at Vallejo.

- The old stage house here is in ruins. Only a portion of the roof is intact. The walls were made of Salt-grass and set in a "plaster" or "mortar" of coarse sand. ^{the layers} The sod was cut into regular bricks about 4 X 8 X 1/6 inches. One of the porch columns has recently fallen and exposed the grass, it grew on top of the sod sixty years since and not at all rotted in this dry climate! This is a very remarkable fact. The grass was not as tough, it breaks more easily than the fresh grass, but it is still fairly strong. The walls are topped by heavy sills on which the round Cottonwood rafters were mortised with wooden pins. Over these rafters was laid a mat of willow poles bound together with rawhide. On this was laid a grass*, then a layer of mud was plastered, and over this a layer of clay. I did not see a nail in the whole structure. See p. 46.*

- A boy vaquero* who rides into camp this morning says the term Vallecito applies to this whole valley as far as the rocky hill over which the grade is cut, separating Main Valley (see p. 42).

- The following plants are here:

Arrow-weed (*Pluchea sericea*), 4 ft. h.

Screw-bean (*Prosopis pubescens*).

Mesquite (*Prosopis juliflora* DB.).

Heliotropium curassavicum L.

Atriplex lentiiformis, - 6 to 8 ft. h.

Atriplex (no. 8615). This is the common species about Vallecito and throughout the valley. It looks to me like *A. torreyi*.

But I have no record of that sp. from this region. It is neither in fl. nor with old fruits. [cf. no. 8648. *Atriplex canescens* Nutt.]

Chenopodium murale and album - these only about the horse-trough.

Salvia columbariae Bth.

Acacia greggii Gray.

Populus Fremontii (2 trees).

Cont. p. 46.

* His name is McKane and he works at the Campbell Ranch near the Head of Vallecito.

- Some of the poles in the old stage house appear to be coniferous as shown by the whorls of branches. Such timbers could easily have been brought down from the mts. about Cuyamaca, a short distance west. The "grass" is really a subshrub (*Scirpus olneyi* Gr., no. 8614).

Cut. from p. 45.

Fouquieria splendens.

Frauseria dumosa.

Sarcobatus vermicularis, not common, only about the springs.

Eucelia, no. 8623. A more sloping rocky mesa $\frac{1}{2}$ mile to 1 mile north of camp is yellowed and by this species. ^{obviously}

Larrea tridentata, abundant.

For other species at this point see numbers.

- Common Names. - One runs into a good many Spanish and Indian common names for the plants in this part of the state. All the trees of the desert have common names in the Mexican tongue and most of the live desert trees are legumes - of one family. I hope to get a good many common names this trip. They are most useful. Persons all about the state help me

to material ^{3000 ft.} which I use scientifically but haven't much interest in the scientific names which I send them. They want common names since their interest may not be taxonomic but in the habit or use of the plant. They may have a genuine interest in behavior and occurrence and life-history or seedling habits or in similar matters and for everyday or colloquial use they are entitled to folk names. The best botanists are the least pretentious usually and in ordinary conversation they use most commonly the English names unless perhaps they are taxonomists and engaged in technical discussion.

No. 8526. *Basia*

Yellowing the fields, Warner Ranch. 14 Apr.

No. 8527. *Arctostaphylos glauca* Lindl.

10-12 ft. h. Berries sticky. Hill slopes, Warner Ranch

No. 8528. *Plagiobothrys tenuis* Gray.

This sage grew on the hill bases. Warner Ranch
No. 8529. *Leptosyne*
with 8528.

- ✓ No. 8530. *Nemophila menziesii* H. & A.
Cor. deep blue. Base of brush, Warner Ranch.
✓ No. 8531. *Ceanothus* ~~*laevodermis* Greene~~
#8-10 ft. h., Warner Ranch. ** hills *
greggii (Gray) var.
✓ No. 8532. *Ceanothus perplexans* (Trel.) Jeps.

With 8527. *Ceanothus* Warner Ranch ** and Santa
greggii Gray var. ^{prob. but on this ranch.}

- ✓ No. 8533. *Ceanothus perplexans* (Trel.) Jeps.

This grew on the mt. slopes coming down from Warner Ranch into San Felipe Valley. It made a most beautiful sight in full flower. Shrubs 4 to 5 ft. h. It seems too large-leaved for *C. perplexans* Trel. and the leaf line is not typical.

- ✓ No. 8534. *Rhus ovata* Wats. A large shrub, all over profusely flowered, 12 ft. h., 18 ft. broad, rounded, several stemmed. This shrub is a very fine one and I take a photo. of it. San Felipe Valley

** Warner Ranch is in Warner Paeo.

* Towards San Felipe. Leaves thick and brittle, pale green above, pale or glaucous beneath. Flowers in simple racemes; very dark blue, or pale blue, on different bushes.

- There is a spring 4 miles below Vallejo station. It is called Agua Caliente and is up a cañon one mile to right. A road leads to it. The water is drinkable. It is lukewarm. - Vaquero McKane.

- As we ate breakfast this morning a mocking bird, perched on the top of a screw-bean tree, regaled us. It flew along and cold yesterday, howled all night, and today the wind is very strong - perhaps gale force. The tops of the ranges west are heavily banked with fog. Southwesterly from us is the great heavy mass of Laguna Mt., showing blue and dark. I write "Laguna Mt." as the name given me by the Vaquero McKane.

- ✓ No. 8535. *Eustoma siliatifolium* Salisb.

Capsule 2-valved with marginal placentae; perennial! One capsule has 3 valves but I take it to be anatomical. Alkaline marsh.

- ✓ No. 8536. *Sisymbrium pinnatum* Greene.
^{= *Descurainia pinnata*}

This crucifer grew in shade of a Prosopis

- no. 8537. *Allium fimbriatum* Wats.
 Ovary lobes with 2 crests projected upward as free ovate-lanceolate fringed or toothed appendages. Per. lilac-purple. Only one individual seen. (H. A. Dutton).

No. 8538. *Figuiera deltoidea* Gray
 var. *Parishii* (Greene) Vasey & Rose
 This composite forms a diffuse bush

2 or 2 1/2 feet h. in the rocky washes.

No. 8539. *Krameria grayi* Rose & Painter.
 see p. 68.

No. 8540. *Eschscholtzia*
 wash.

No. 8541. *Galium*
 Rocky wall cañon.

No. 8542. *Lupinus concinnus* Agardh, var.
oreanthii C. P. D. Sm. (Det. C. P. D.)
 Remarkable for its narrow sordid yellowish white banner, brings light blue. Fls. very conspicuous, half-concealed in the short spike which is mostly exceeded or covered by the foliage. Wash.

No. 8543. *Lotus tomentellus* Greene.
 Banner nearly twice as long as the wings these covering a minute or small keel.

Cor. a clear luteous yellow. Wash.
 No. 8544. *Lupinus arizonicus* (Wats.) Wats.
 Wash. Cor. a most distinctive purple, perhaps lavender-purple or maybe better crimson purple. Banner with a sharply defined central white spot of orboid or rather quadrate shape. This spot is much sharper and clearer than in *Lupinus* generally. It has a few purplish dots on it. Keel glabrous. ^{see p. 140.}
 No. 8544a. *Lupinus bicolor* ssp. *microphyllus*
 No. 8545. *Lotus saliciginosus* Greene
 var. *brunneovillosus* Oakes
 Wash.

No. 8546. *Delphinium*

Lower pair petals blue-purple, cleft; upper pair much smaller, less colored. Sepals blue-purple. Hillsides.

No. 8547. *Cryptantha barbigera* Greene.

This barriage grew in the protection of a bush in the wash. = *varinifolius* (H. B. G.)
 = *C. nevadensis* Nels. & Ken.

No. 8548. *Lycocarpa culteri* Hook. & Gray
 This crucifer is woody at base for about 6 to 10 inches. Its flowers are a peculiar tawny yellow.

No. 8549. *Philibertia hirtella* Parish.

Climbing a little. See p. 63. See also below.

No. 8549a. *Philibertia hirtella* Parish.

See p. 63.

* This is an approximation derived from p. 84, Mendenhall's Desert Watering Places in Cal.

The Advantages of Field Examination.

Illustrated by no. 8549. Its flowers are structurally so different from *P. hetero-*
(Engelm.) *Sepson*
phylla that a proposal has been made to put it into a distinct genus. And yet these two were both regarded as varieties of one species in the Syn. Fl. The field examination of the flowers shows the great unlikeness of the two species - and yet lab. dissection had shown the same results. A generalization should be made from this and similar cases for use in the preface of the manual; and contrast with the case of ecologic variation as in *Ischscholtzia* and seeming ecologic

variation as in *Godetia* species where the multibudum strains seem to breed true. No. 8550. *Molara confertiflora* Hel.

Wash bed, in sand. Fls. so pale a cream color as to be almost white, and yet a distinct cream after all. The palate of the lower lip is very convex; up it runs a yellow nerve, at the end of the nerve is a purple splash which is situated on the sides of the palate, while the rib or nerve referred to runs up the middle of the summit. The upper leaves or bracts of the flowers properly are narrow-lanceolate, attenuate and very stiffly erect. The upper lip has a shower of purple dots in a well-defined center. Stems quite stocky. Stamens and style included, not extending beyond the closed palate. The cor. structure is, basically, a great deal like *Antirrhinum*. Cont. p. 67.

No. 8551. *Perityle emoryi*

Leaves palmately lobed; rays short, white. Wash, in sand.

- ✓ No. 8552. *Senecio Mohavensis* Gray
Wash in sand. Rays none, disk yellowish.
- ✓ No. 8553. *Flagonia californica* Bth.
Plant forming a thickly interlaced roundish bunch of stems; the stems woody for half the height (about 1 ft.) or a little more than half ($\frac{2}{3}$), quite thick ($\frac{1}{2}$ inch) below. Petals crimson, obovate, obtuse, clawed, the claws spreading between the sepals. The petals are almost rotate and are cupped above so as to be shallow bowl-shaped. Stamens 10, with yellow anthers. Ovary angulately and strongly 5-lobed, i.e. a cross section is almost star-shaped. Ovary 5-celled, the ovules axile. Style obclavate; stigma apparently one. Rocky wall of cañon. Cont. p. 66.
- ✓ No. 8554.

This looks like *Babbia juncea* and yet seems different. Woody stems several or many, the new green shoots

- Many from near one point or from one node. Old stems gray. Low broad bush $1\frac{1}{2}$ or 2 ft. h. Wash.
- ✓ No. 8555. *Encelia* (Discarded, insect damaged)
Rays lemon yellow. Rocky wash
- ✓ No. 8556. *Oenothera alyssoides* H. & A. var. *decasteansis* ^{sp. nov.} Fls. white, turning a little pinkish. Leaves glaucous. Stems with white shreddy bark.
- ✓ No. 8557. *Parosela schottii* Hal.
Mesa shrub 4 ft. h. Fls. dark royal purple.
- ✓ No. 8558. *Oligomeris linifolia* Nees.
Mesa.
- ✓ No. 8559. *Plantago*
Leaves grass-like, thin.
- ✓ No. 8560. *Oenothera chamaenerioides* Gray.
Stems and leaves dark red-brown. Flowers small. Wash.
- ✓ No. 8561. *Eriogonum thomasi* Torr.
Its inflorescence like a thin cloud. Per. yellow; involucre greenish. Per. fading red-brown. Wash. Common.

✓ No. 8562. *Chorizanthe*

Common on the mesas

✓ No. 8563. *Brythanthra maritima* Greene.

This biennial grows on the dry mesas.

✓ No. 8564. *Pectocarya recurvata* Jtn.

Wash.

✓ No. 8565. *Nemacladus*

Upper lobes lanceolate, somewhat diverging; lower lip with 3 oblong lobes, acute, a brownish-purple spot near the end of the lobes. Fils. distinct over the ovary, united into a tube around the style; anthers spreading star-wise on very short free portions of the fils., spreading or rotate about the capitate stigma. Fils. white. Sepals linear. Wash.

✓ No. 8566. *Antirrhinum*

Upper lip shortly cleft, its lobes quadrately truncate, turned backwards a little so as to approximate back to back, palate very prominent, purple-dotted; lobes lower lip oblong, acute, spread-

ing. Climbing by the filiform peduncles. Cor. yellow, - a straw or lemon yellow. Palate (closed portion) short hairy.

✓ No. 8567. *Beloperone californica* Bth.

Cor. crimson. Lower lip very long, spreading, 3-toothed at apex, the teeth rather large and rounded. Upper lip entire, erect. Somewhat intricately branched shrub or bush rather, 2 to 3 ft. h. Wash. Cont. p. 67.

✓ No. 8568. *Lepidium lasiocarpum* Nutt.

Dry mesa.

✓ No. 8569. *Stylocline micropoides* Gray

This gnaphaloid plant grew in washes.

✓ No. 8570. *Phacelia distans* Bth.

Protection of bushes, etc. and difficult to extricate.

✓ No. 8571.

Raye white. Common.

✓ No. 8572. *Malacothrix glabrata*

Ligules clear lemon-yellow.

✓ No. 8573. *Gilia schottii* Wats.

Cor. pale pink; bilabiate.

- No. 8574. *Thelypodium lasiophyllum* var.
utahense Jepson.
 No. 8575. *Oenothera decorticans* H. & A.
 No. 8576. *Draba cuneifolia* Nutt.

This crucifer grew on the mesa and
 to little washes and seemed rare.

- No. 8577. *Nanua demissa* Gray.

Common in washes (in sand) on the mesa.
 No. 8578.

This cichoriad has quite dif. leaves
 from 8579 but otherwise seems the same.
 No. 8579. *Rafinesquia mox-mexicana*

Heads a beautiful clear white as seen
 from above. Always growing in the pro-
 tection of bushes and difficult to
 extricate a plant whole. Washes.

- No. 8580. *Minimus bigelovii* Gray. et. A. L. G.

Very common in the washes, its flamm.
 very large and very showy, even with
 a voluminous look, the individuals
 so heavily laden with flowers.

- No. 8581. *Ellisia micrantha* (Torr.)
erythra micrantha Hal.
 Cor. white, urn-shaped or rather

deeply bowl-shaped, or short-compari-
 sonate, 5-lobed equally, the lobes quadrate.
 Stamens 5, a little unequal in length, 3 of
 them being longer. Capsule 1-celled, loc-
 ulicidally 2-valved; seeds few (I count
 13 in one case). Ovary densely toment at
 summit; style 2-cleft shortly, the stigmas
 capitate. Calyx-lobes obtuse. Calyx cov-
 ered with stalked black glands. Wash
 and under bushes on mesa. Not common.
 Calyx erines with an obscure down-turned
 point or angle, — on re-examination I
 think I do not see it. I do not see
 any appendages in cor. tube. Calyx
 wrinkled but sparsely hispid. Between
 the fil. there is a yellowish spot which
 may have some slight structure associated
 with it. so ~~XX~~ ^{on cor. tube}, that is a yellow spot with
 a pair of diverging nerves. I am not
 at all certain, however, as the area is
 minute and structure, if any, obscure.
 No. 8582. *Larrea tridentata* Cov. var. *gluti-*
nosa Jepson.
 abundant here.

- no. 8583. *Eriogonum reniforme* Torr. & Griseb.
 2nd I remember rightly = *E. thomasi*.
 See 8618. ^{Sandy wash.}
 Cont. p. 69.
- no. 8584. *Hesperocallis undulata*

Coll. by H. A. Dutton.

- no. 8585. *Lycium andersonii* Gray
 Water-jacket. Leaf thick and rice-
 grain-like in the fascicles, longer
 obovate in the primary leaf. Rounded
 thickly branched bush ^{to} 5 ft. h.

- no. 8586. *Lotus rigidus* Greene.

Banner larger than wings. Cor. clear
 lemon-yellow. Sandy wash.

- no. 8587. *Gilia latiflora* Gray = *G. newblomii* Jepson!!
^{stellata Heller}

Original shoot cropped off by cattle, in-
 ducing a heavy growth of stems from
 the crown. Spm. represents the plant
 cut through the middle into halves.

- no. 8588. *Gilia schottii* (Torr.) = *Langloisia*

Upper lip of 2 divergent oblong lobes,
 lower lip of 3 spreading (from the tube)
 but more approximate lobes, all pur-
 ple patterned or dotted. Lobes of upper
^{wind's base}

- lip dotted, lower lobes base. Cor. pale pink.
 Sandy wash. = *Langloisia schottii* Greene.
 no. 8589. *Calyptrotridium monandrum* Nutt.

Sandy wash. common
 = *Eriastrum diffusum* (Gray) Mason

- no. 8590. *Gilia diffusa* (Gray) Jepson.

Sandy wash. Cor. lobes oblong-ovate, ob-
 tuseish; tube with a yellow band at
 summit, really in throat; stamens ali-
 ghtly unequal, inserted in tube just be-
 low this yellow band, somewhat exerted,
 i.e. plainly so. = *Hugelia diffusa* Jepson.

- no. 8591. *Oenothera refracta* Wats.

often very full and "lanky". Sparse of
 foliage. Sandy wash. Cor. yellow.

- no. 8592. *Oenothera micrantha* Hornem.
^{var. ar. foliata Jepson.}

Sandy wash. Cor. yellow.

- no. 8593. *Oenothera scapoidea* J. & G.

Cor. white. Sandy wash.

- no. 8594. *Chaenactis*

Cor. white. Sandy wash.

- no. 8595. *Abourea*

"Cor." deep lavender purple. Sandy wash.
^{i.e. perianth}
 Perianth lobes with a broad V-shaped

- sinus; stamens inserted near summit of tube, no two inserted at same level; anthers subsessile.

No. 8596. *Malacothrix dubata*

Ligules lemon-yellow. Sandy wash.

No. 8597. *Sphaeralcea exilis* (Gray) Jepson.

Pets. white, obovate, rather obtuse. Style 7, free upper half, united below; stigmas capitate. Sandy wash.

No. 8598. *Thelypodium lasiophyllum* (H. & A.)

Greene. This crucifer is an annual. It is very erect, branches a little above the base, the whole plant very strictly erect, 3 ft. tall. Sandy wash. ^{looks towards} *var. utahense*.

No. 8599. *Thelypodium lasiophyllum* var. *utahense*.
Streptanthus longirostris Wats.

This has something of the aspect of a slender rigid stick. Sandy wash.

No. 8600. *Gilia* ^{*stellata* Heller} ~~*latifolia* Gray~~

Sandy wash. Cor. blue (pale).

No. 8601. *Montezuma albicaulis* Dougl.

Cor. yellow. Sandy wash. Pets. elliptic, obtuse; stamens 35 about. No dilated tube.
30 to

No. 8602. *Hymenoclea salsola* T. & G.

Low bush of the washes, 2 to 3 ft. h.

No. 8603. *Cryptantha muricata* Gray = *Erasmia* ~~*muricata*~~ *greenei*.

This forage grows in the washes.

- Cont. no. 8549. *Philibertia hirtella*.

Appendages white, subglobose, attached on the inside to the stamen column and below to the ridge-like crown which is even and low and sets on the cor. tube. Cor. lobes ovate, pubescent and ciliate. No. 8549a is a plant which had numerous stems from the root crown. There was no support for climbing and so the stems twisted around each other in sets and thus became erect. As there was no hope above, the plant sent out from the lower stems long runners which had become 5 to 6 ft. long and would have reached the nearest bushes but for my taking specimens! Sandy wash.

No. 8604. *Hyptis emoryi* Torr.

Coll. by H. A. Burton. A bush mint.

No. 8605. *Pentstemon clelandii* Gray.
Cor. red; lobes subequal, quadrateish,

closely reflexed all of them, both those of the upper and lower lip! so that save for the distension of the throat on the lower side the corolla would not appear 2-lipped. Stamens and style glabrous, the sterile fl. with a tuft of hairs on the upper side at apex. Leaves thick, fleshy, broadly ovate, undulate on the margin. Coll. by H. A. Dutton.

No. 8606. ^{*Lipanthus*} ~~*Gutierrezia*~~ aurea (Nutt.) Greene

Cor. cream-color with yellow throat. Style with pale three divergent linear stigmas - about 1 line long (quite marked as a character). Coll. H. A. Dutton.

No. 8607. ^{*chinensis (Link) Schneid.*} ~~*Simmondsia*~~ californica Nutt.
Coll. H. A. Dutton.

No. 8608. *Phacelia crenulata* Torr.
Sandy wash, rare here.

No. 8609. *Achyrocnichia cooperi* T. & G.
Coll. by H. A. Dutton.

No. 8610. *Oenothera biortata* Nutt.
Cor. yellow. Coll. H. A. Dutton.

- *Fouquieria splendens*. Dutton measures one individual which has been thrown by storm. It is 22 ft. 6 in. tall. The base is a swollen or enlarged globose structure as it appears from above, covered with an imperious parchment-like cortex, this covering a cork-like fleshy mass which is plainly a reservoir of food materials and water. The bushes are just beginning to come into full flower. See p. 66.

- This business of getting down on one's knees is very tiring. In the desert there is no place to get out down. You get down on your knees to put plants into press, to change driers, to tend the cooking at the campfire. Perhaps I suffer from lack of training in getting down on my knees regularly, but even one who did would see objections to doing so in the desert when getting down on cactus spines which are tied everywhere in the desert sands, or the mesquite spines which are about the moist places.

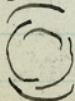
- *Distichlis spicata* forms a truly fine even close regular lawn at our campsite beneath mesquite trees. It is a great joy to have a camp so free from sand.

- The wind which has been blowing with great violence since we came to this side the main range turned into a rain storm at dusk last night. This morning the main range, which for days has been blanketed heavily with fog, is clear and shows snow everywhere along its summits, such as Laguna Mt., etc.

- Cont. no. 8553. Sepals distinct, oblong-ovate, mucronate, the slender mucro abruptly recurved. Only one individual seen.

Fragaria californica.

- *Fragaria splendens*. Cor. crimson, its short lobes round-ovate, convolute-reflexed in anthesis; stamens 15, the fil. arising at base from a very long, obliquely cut sheath, the edge of which are ciliate. Style 3-cleft half-way. Fil. crimson like the corolla and style. Ovary 3-angled with axile placentae. Ovules several. Sepals roundish ovate with membranous edges, distinct, the aestivation so:



See p. 42, 43, 65, 73.

- Cont. no. 8550. Mohave. Upper lip dotted over whole of unlobed portion. Yellow ridge on lower lip (palate) as strongly in relief as to appear almost like a spur. A distinct but short sac-like spur on lower side cor. tube. Upper leaves appearing narrower than they are because of being conduplicate.

- Cont. no. 8567. Delapere

Anthers most distinctly separated on the fil.

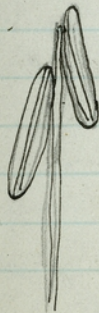
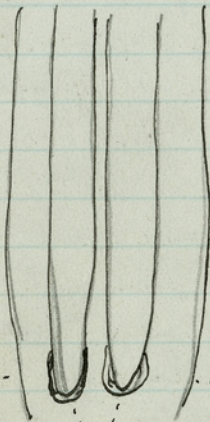


Diagram of stamens, insertion of.



The pair of fil. are inclusion upper and lower lip.

filament.

..... filament.

upper lip slightly notched.

Much thickened ridges forming a sort of pocket, somewhat of half-circle on outside. There are opposite upper lip.

- Cont. no. 8539. *Krameria*. Sepals ovate, acute, the upper are broader, two lateral and two lower. Ovary hairy with style curving down at tip and so somewhat sickle-like but short and thick. On upper side ovary are two fleshy roundish in outline scales densely covered with papillate glands; on lower side are four fil., somewhat bulbous-dilated below the apex, the two lateral longer. The pollen is a sticky mass which is extruded from a sac above the bulbous, which appears to burst irregularly. Below the stamens are 3 small petals in a row, the blades purple, the fil. flattened, twice as long. It is a most remarkable flower and would appear to deserve rank as ^{generic type of} a distinct family. Ovaries 2, pendulous, attached on lower side, i.e. on lower side pistil morphologically. Flower parts crimson; outside sepals gray-pub. Pedicel fl. with a pair of small bracts near it. The fleshy scales with their papillate glands would be diagnostic.

17 Apr. 1920.

- Cont. no. 8581. Cor. lobes emarginate. No glands or processes in tube that I can see. ^{or ? 8583a?}
- Cont. no. 8583. *Leriogonum*. Per. pale yellow. Outer per. seps. expanded at base into auricles which are distinctly hollowed. Inner per. seps. similar but far less developed.
- Correction: inner per. seps. narrower than outer, expanded at very base as outer also. Prob. no auricled sac in either, unless in age.
- No. 8611. *Railandella Palatensis linearis*
• Coll. H. A. Sutton.
- No. 8612. *Hoplopappus acradenius* (Greene) Blake
subsp. *chamophilus* (Greene) Hall. det RCB. 6/10/63
- This composite is the prevailing one on all the alkaline area about Vallecito proper and is especially abundant near the old stone house and about the springs. See p. 192.
- No. 8613. *Astragalus aridus* Gray.
Cor. purple; dry mesa
- No. 8614. *Scirpus olneyi* Gray.
Stems acutely triangular! 1 to 4 ft. h. in the marshy springs. Abundant. See p. 44 and 46.
- No. 8615. *StriPLEX*
Thick bush 4 to 6 ft. h.
- A road-runner flashed across the path before us near the springs this morning.

No. 8616. *Mirabilis*Sandy wash. fls. white. Stems 3-4
ft. h. in bushes.No. 8617. *Oenothera*.

Coll. H. A. Sutton.

No. 8618. *Eriogonum maculatum*

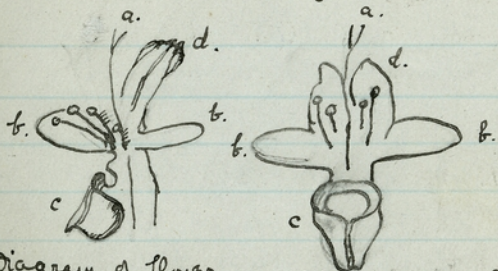
with 8583. See p. 69.

No. 8619. *Emmenanthe penduliflora* Bth.

See p. 82.

- We are now leaving Vallecito and going back to Mason Valley. I am again impressed by the highly localized character of the plant distribution. We worked out only $\frac{1}{4}$ to 1 mile in various directions but always finding new species. We start up the valley of the Vallecito. At its head is a rocky spur which traverses the valley from side to side. This place furnishes at its base a fine batonizing ground and we spend a half day nearly collecting at this point. All numbers from 8620 to 8636 collected at this rocky traverse, head of Vallecito.

17 Apr. 1920.

No. 8620. *Hyptis emoryi* Torr.Diagram of flower
from sideDiagram of flower
from front.

Calyces woolly with pinnately branched hairs, its lobes lanceolate attenuate.

Upper lip with its lobes turned back in such a way as to be back to back. Stamens 4, upper pair shorter. Lateral lobes lower lip spreading laterally. Middle lobe lip curved shortly downward and upward into a thickened ridge or so as to form arch, its two lobes so connivent or perhaps even connate at tip so as to form a sac.

a = style. b = lateral lobes lower lip. c = middle lobe lower lip and its sac. d = upper lip.

Bees were feeding busily on these bushes, which were a beautiful desert or soft gray.

Vallecito, rocky traverse at head of
(La Puente)
4 to 5 ft. h. Ovaries seated or raised on a
white disk. Sac a true sac, not with con-
nivent or connate lower margins.

No. 8621. *Fouquieria splendens* Engelm.
See p. 73, 66, 42, 43. Upper Vallecito

No. 8622. *Acumetopappus sphaerocephalus* ^{gray}
Densely branched rounded bushes,
just coming into fl. See p. 75. ^{with} 8621.

No. 8623. *Encelia* (Discarded, insect damaged)
Rocky traverse

No. 8624. *Trixis californica* Kellogg
Rays yellow, aging white!, 10, 10, 13, 9, 10,
9, 8. I count ^{soon} only the conspicuous
outer circle which passes gradually
to those of the few-flowered "disk"
The disk consists of fls. which are in
structure similar to the ray, that is all
fls. are 2-lipped, 2 long lanceolate lobes
in upper lip, a ligulate lower lip 3-toothed
at apex. Rounded bush 1 to 1½ feet high,
the stems stem from much branched woody
crown 4 to 6 inches high.

c. 1700 ft. 17 Apr. 1920. San Diego 73

The upper Vallecito.

- *Fouquieria splendens* makes a forest
about 2½ miles long by 2 miles wide.
It is remarkably strange. When we came
down into it from Nasson Valley on the
out trip we felt that we were really
in the desert when we entered it. Now
that we are returning thru it the
effect is no less novel in its strange
^{upon the mind} uniqueness. The clumps consist of from
a half dozen to as many as 50 or
even 100 stems. They are mostly un-
branched, a little tortuous at apex,
and then with the tongues of
flame 4 to 10 inches long darting
from their ends they suggest sym-
bols of wild beings belonging to a
past age or another world. We
measure tall ones as follows:-

No. 1. - 22 ft. - Cow Camp, Campo Cattle Co.

No. 2 - 21 ft. 2 in. - Upper Vallecito.

No. 3. - 25 ft. 2 in. - Rocky traverse, upper
(circ. 16 in.) Vallecito.

74 Sandiego Vallecito, rocky traverse at head of
 - "Near the center of Vallecito there are
 great quantities of *Hesperocallis undulata*.
 The cattle do not touch it for some
 time and then in two weeks they clean
 it up" - acc. James McMillan of Mason Val.
 (La Puerta) 6

No. 8625. *Sphaeralcea ambigua* Gray.
 Cor. deep apricot yellow. Stems many
 from the base, little or not at all bran-
 ched, 2 to 3 ft. h. Stigmas 15, capitate, black.
 No. 8626. *Eriogonum barbigera* Greene.

No. 8627. *Nicotiana trigonophylla* Donal.
 Bushy-branching, 1 to 3 ft. h. Cor. dull
 white or, better, very pale cream. Re-
 markable for its prickled leaves. Base
 of rocks.

No. 8628. *Physalis crassifolia* Bth.
 Cor. buckskin yellow.

No. 8629. *Pterostegia drymarioides* F. & M.
 Shade of rocks.

No. 8630. *Parietaria* ^{*floridana* Nutt.}
^{*debilis* Forst.}
 Shade of rocks. See p. 77.

c. 1700 ft. Apr. 17, 1920. [cf. "La Puerta"
 p. 198d seq.] 75
Vegetation of the Upper Vallecito.

Forgueria splendens, see p. 73.

Franseria dumosa, abundant.

Larrea tridentata, common but not
 abundant - as in the Lower Vallecito.

Scamptopappus sphaerocephalus
 abundant, 1 to 2 ft. h. no. 8622.

No. 8631.

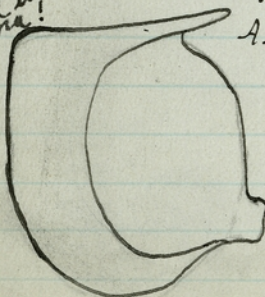
only one individual seen.

No. 8632. *Chaetanthes viscida* Davenp.

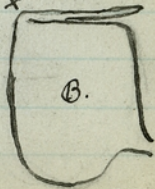
These two ferns, 8631 + 8632 grew in shade of
 rocks.

No. 8633. *Asclepias subulata* Dougl.
 det R.C.B. 10/20/60
 unfortunately -
 this spec. is
 not in
 the flora!

No. 8633. *Asclepias subulata* Dougl.
 det R.C.B. 10/20/60
 unfortunately -
 this spec. is
 not in
 the flora!



A. = Hood with one side
 removed. Of scale
 from B. which shows
 the hood entire, the
 cleft running back to
 the
 outer
 angle
 at X.



Stems entirely leafless,
 one plant 9 ft. 2 in. high!

- over -

Fls. dull white; cor. yellowish white.
No. 8634. *Pentstemon clelandii* Gray.
Stems several from the base, (4 to 21
in. h. Cor. crimson, its lobes shortly
round-ovate, obtuse, spreading, the 3
lower divergent, the 2 upper nearly paral-
el. Fil. + style glabrous, the sterile fil.
short-bristly at apex on upper side.
Anthers kidney-shaped.

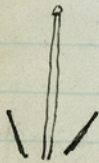
No. 8635. *Ellisia* = *Encrypta chrysanthemifolia* Greene, var. *bipinnatifida* Constance.



A.

Cor. white, ^{minute,} broadly camp-
anulate with shortly round-
ovate lobes. Stamens with
the fil. free. A pair of verti-
cal lamellae ^{diverge} ^{from the base of each fil.}
from the base ^{upwards}, as
shown in diagram "A."

Their position is about
as in B, the plates
or scales standing erect,
^{that is vertical to cor. tube wall.}
The ovary is closely con-
nected with straight



B.

upwardly pointed ("La Puerta", p. 198d seq.)
white hairs. Style shortly 2-cleft,
the stigmas small, terminal. Ovary
resting on a thin yellowish disk.
[No. 8630, Cont.]

Calyx of 4 somewhat boat-shaped mem-
branous sepals purplish on upper
third and ^{long}-ciliate on entire margin.

Ovary very smooth and shining, as
if it would become glassy-surfaced
in fruit. Stigma minute. Style none.
Stamens 4, with very large anthers.
Shade of rocks.

No. 8636. *Tillaea erecta* H. & A. var. *arenica* Jepson.
This sedoid plant has 4 fleshy ovate
attenuate sepals, 4 thin lanceolate ^{attenuate} petals,
4 stamens, 4 distinct carpels with 2
seed in each. Granite sand at base
of rocks.

The rocky cross ridge or barriere which
separates the Vallecito from Mason Valley we
find to be a wonderful botanizing spot at
its lower or easterly base. Many things
find semi-shade under the rocks and are
protected from cattle.

- We climb by a narrow and dangerous new-made road where the soil and rocks have not yet settled up a grade and over the rocky traverse referred to above and enter Mason Valley. The soil here is sandy but deep and good and largely free from ^{the} gravel ^{one finds} bluffs Vallejo. The difference is apparent in the "grassy" vegetation which consists of *Erodium cicutarium*, *Lupinus* (no. 8718), *Oenothera* (no. 8717), *Elytia* (no. 8719), *Cryptantha* (no. 8715). ^{& Lemmonii}
The "brush" is *Larrea tridentata*, *Franseria dumosa*, *Acomptopappus sphaerocephalus*.

- *Agave deserti* [no. 8711]. I measure one plant which is 15 ft. 6 in. h.

- At the lower end of Mason Valley is a "flat" with a fine stand of *Atriplex canescens* (same sp. as 8648).

Ephedra (no. 8668). *Hymenoclea salsola* is abundant. White Sage (*Salvia apiana*) is common. *Philopris soligus* in the washes. Cmt. p. 104

- Towards the upper end of Mason Valley near the entrance to Box Canyon is a settler and his wife, Mr. Mrs. James McMillan, who were most pleasant to us.

Bee Food.

The bees, says McMillan, feed on a little blue flower [*Lupinus* no. 8718], on *Filaree* [*Erodium cicutarium*], on Mescal [*Agave deserti*] which lasts about 4 weeks, on Greasewood [*Larrea tridentata*] and on a yellow flower which comes later and makes very good honey. The Greasewood is now flowering and precedes the Mescal. [This should be called California Mescal to distinguish it from the Mexican one.] The Mescal makes a honey which has what we call the Mescal flavor. It is much better than the Greasewood honey which is rather high-flavored.

[no. 8638 I understand is bee food.

[no. 8642 is bee food.

Mason Valley, San Diego Co. ←
 (Same as La Puerta Valley)
Battle Brouse.

One of the best winter brouses is *Hymenoclea salsola*. This is abundant on the floor of the valley. Cows take the bunch of flower heads. Horses in winter take the shoots of the season as large as a pencil* and relish them.* At least it keeps them alive, says James McMillan. "Inkweed is a good cowfeed in winter." I do not yet know what he means by this. *Argemone mexicana* grows in here. If there is any of it in a bunch of hay thrown to eat - the they will not touch it - the bunch of hay. It would appear from what McMillan says that the cattle have as definite times for feeding on certain bushes as the bees have for feeding on certain plants in succession. Cattle will not touch a certain shrub until a certain time and then they "go for it".

* These are the axes of the old inflorescences!!
 slender

** As a winter forage it might be called Horse Fat.

c. 1800 ft.

18 Apr. 1920 (Sunday).

Topography.

- Somewhat northeast of Volcinto Spring is Piñon Mt. which has Piñon on it say James McMillan. Granite Mt. is immediately north of the pass towards Banner from Mason Valley and is in plain view from our Mason Valley camp. Laguna Mt. from this side consists of a long ridge showing 3 nearly equal peaks equally spaced on the high shoulder of the mt. The nearer mountain in that direction apparently has no name. It is quite prominent from here, tho not so prominent as Laguna Mt. McMillan speaks of it as "Laguna also". Laguna Lake lies westerly about 4 miles from the summit of the middle peak. Beyond Laguna, further down the range, is a mountain with a pin point sticking up on its ridge summit, at a point nearest the desert. It is Monument Peak, the "pin point".

being a built monument.

- Cmt. no. 8627. Ovary seated on a cupped yellow disk. Fil. equally inserted near base cor. tube, opp. summit of ovary, arched out at base or from base. One fil. shorter than the others.

no. 8637. *Gilia* [Missing.]

Cor. lumen - yellow, throat orange with a zone of purple splashes at base throat. Stigma strongly divergent, 3, thick, linear, very long, half as long as the style. Cor. lobes roundish, rotate.
(Discarded, insect damaged)

✓ no. 8638.

Bush, rounded, 2-4 ft. h., in wash. The "flowers" are greedily sought by cattle. They fall off and are licked up from the ground. I judge they must be sticky since he said they gave the faces of cattle a peculiar appearance when they were disturbed suddenly when browsing on them.

"Flowers" white. See p. 83, 79.

✓ no. 8639. *Argemone munita* Dur. & Hilg.
see p. 80.

Battle Browse.

- *Simmondsia californica* is heavily browsed. "That is why the bushes are so irregular in shape". - James McMillan.

- [no. 8619, an annual, is greedily sought by cows. They gulp a plant at a mouthful.

- no. 8640. Great cattle feed; cattle "go to it" when they "finally decide it is ready." Called Rosin Weed by James McMillan.

- [no. 8642. *Brunus*.

- *Ephedra*, no. 8668. see p. 95, p. 78.

- *Lolus glaber*. See 8671.

- white Sage, see p. 95.

- Winter-White, no. 8638. The shrubs at this time and during the winter are white as if white-washed, stems, branches and persistent leaves! The new growth or shoots come out from the old branches quite a little below the old top. So I find it in the wash. it is a round bush 3 to 4 ft. h. and 4 to 6 ft. broad. See p. 150.

- No. 8640. *Haplopappus linearicalyx* var. *interior* (Cov.) Jones
 See p. 83. Rosin Bush. H. A. Dutton.
 No. 8641. *Condalia parryi* Wats.
 Called "Wild Plum" by settlers in
 Mason Valley. H. A. Dutton coll.
 No. 8642. *Prunus fremontii* Wats.
 Browsed. H. A. Dutton coll.
 No. 8643. *Eriodictyon trichocalyx* Hal.
 H. A. Dutton, coll. var. *lanatum* J. G. R.
 No. 8644. *Stillingia linearifolia* Wats.
 On the valley flats are tufts of a dry
 grass-like plant, the dead stems
 of last year white and tending to
 converge at the top. New shoots are com-
 ing up from the base and now de-
 veloping fls., a pistillate flower with a
 spike of ♂ fls. proliferous above it. The
 quail frequent these little bushes,
 8 to 14 in. h., picking off the seeds
 later in the season
 see pp. 104, 123.

- For mileage in this region see letter
 by H. A. Dutton, May 13, 1920.

Topography

- Round Valley would be good botanizing
 ground for you says James McMillan. It
 lies just east of Piim Mt. There is fine grass
 in it and it would be a great place for
 cattle if there were water. [He here sounds
 the continuous note of the desert cattle
 man]. There is only one way into it - and
 no white men know the way except
 one or two old prospectors.

Beyond Blair Valley, by passing over a low
 saddle you enter a narrow cañon; it en-
 larges into a little park, contracts again
 to a narrow gorge and enlarges again to
 a larger park. There are several such and
 it would be good botanizing ground
 since no cattle can get into it. The
 entrance is too rough. - J. McMillan.
 - Palmetto is the name of J. McMillan
 for the native palms. T. Brandegee's
 "Palmetto Spring" may well be Palmitas
 Spring which is between Carrizo and
 Valeritos stations.

* All alt. in this region are guesses; prob.
 close guesses, but still guesses.

Economic Uses of the Shrubs.

- *Leurea tridentata* has been our sole resource for fuel while camped at Mason Valley. At first we used the dead limbs or base of the bushes but we soon found that the green wood burns as well. The wood is very dense and hard and makes a hot fire, tho not such a very lasting fire. J. McMillan says: "We get most of our long fuel from Greasewood [= Creosote Bush] roots which are taken out in clearing land."

There is about twice as much wood below the surface as above and the roots sure make fine fuel. My wife says they burn like turpentine blocks or pitchy blocks.

- *Agave deserti* Engelm. California Mescal enriches the land very markedly where it grows. The valley floor here at McMillan Ranch is a sandy soil mixed with fine gravel or granite grit. In the wheat field (cleared land) the stand is much heavier wherever there have been "mescal beds". This *Agave* propagates

vegetatively by offshoots. The central one dies after flowering and new offshoots continue to arise so that finally a fairly large circle 10 to 20 feet broad arises. The circle may and probably ^{does} become broken by further enlargement and detached portions migrate laterally indefinitely. The tallest shoots of the Agave are about 15 ft. h.; we measured none taller. The flowering of this species lasts 4 to 6 weeks says J. McMillan who speaks of honey from this as having Mescal flavor. He asks if there is any way to "kill" this taint in the honey. He says a neighbor mixed Mescal honey with "wild Plum" honey which is very bitter and the bitter taste was killed.

Similarly to Agave, the Creosote Bush enriches the land and its mounds prove a fertilizer for the grain land.

- Desert Apricot, no. 8659. Its fruits yellow when ripe or a little reddish on the side towards the sun. Scarcely edible but pigs clean them up. ^{by man}

(Same as La Puerta)

- No. 8645. *Linum catharticum* (Link) Schneid.
Linum catharticum Nutt.

Calyx of 5 sepals somewhat concave-spathulate, some irregularly crose. Stamens 9, 9, 10, 10. The real number probably always 10. The anthers fall readily. I get 4 more 9s; but the fls are not young enough to be sure that anthers have not fallen. Very dense and thickly branched shrub 7 ft. h. See p. 122.

- No. 8646. *Perityle emoryi*

Rays white, 10, 12, 12.

- No. 8647. *Cryptantha barbigera* Greene.
 Sandy soil.

- No. 8648. *Striflex canescens*
 6 ft. h. See p. 127.

- No. 8649. *Arabis perennans* var. *longipes*
 Jepson.
 Rock cleft.

- No. 8650. *Phacelia campanularia* Gray.
 Cor. deep royal blue purple, campanulate. Stamens exserted; anthers white. Style deeply cleft. Notice some of the racemes are unilateral. Cmt. p. 59.

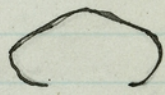
c. 1800 ft. 19 Apr. 1920

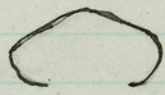
- *Acaia greggii* Common.
 - *Franseria splendens*.

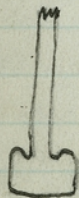
- No. 8651. ~~*Franseria*~~ *Viguiera deltoidea* Gray
 var. *Paxillii* (Greene) Vasey + Roth
 Rays, 10, 12, aging blotchy white. Bush on rocky wall cañon 3 to $3\frac{1}{2}$ ft. h. See p. 122.

- No. 8652. *Mentzelia albicaulis* Dougl. Greene
 Cor. deep straw yellow, or yellow, with orange center. Sandy soil. See p. 122.

- No. 8653. ~~*Gilia*~~ *Linanthus lammonii* Gray.

Sandy opens. Cor. dull or pale cream-white deep yellow throat; a zone of cuneate [cont. below]  "Petal" (i.e. Cor. lobes).

- *Phacelia* no. 8650. Cor. lobes twice as broad as long, somewhat rhomboid.  "Petal" (i.e. Cor. lobes).



Fil. with a quadratish dilatation at base, toothed obscurely on each side.

- *Gilia*, no. 8653, cont. ^{red-} purple splashes in lower part of throat, ^{just} at summit of tube. Fil. traces running to base of throat as yellow ridges. Anthers yellow. Stigmas

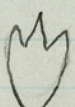
- 3, nearly line long, thickish, radiate.
No. 8654. ~~Gilia~~ ^{Lipanthus} aurea (Nutt.) Greene
Cor. twice size of 8653! Lemon yellow,
with yellow throat (darker yellow shade),
base of throat with a zone of dark purple.
This flower is in structure exactly like
no. 8653 except twice the size and
differing in coloration markedly.
See the parts including the stigma
are twice the size. It is a very
wonderful parallel. The two forms
occurred in dif. parts of Box Cañon,
but also occurred together in one
place and were very dissimilar.
A casual observer might have per-
ceived 8653 as a depauperate color-
faded or poverty color form of 8654
but this is not in the least true.
Calyx-lobes in 8653 a little exceed-
ing tube!, in 8654, ^{equalling or} a little exceeding
half the length of tube! but in
both case the lobes mucronate.

- 91
Haplopappus (linearifolius)
No. 8655. var. interior (Constantin) See p. 122.
Low broad bush 2 ft. h. Rays 8, 9, 8, 10, yel.
No. 8656. Castilleja foliolosa Nutt. Low.
Rocky cañon wall.
No. 8657. Lolium rigidum Greene.
Insect stung fls.
No. 8658. Ephedra
Bluish green bush, broad, 3 1/2 ft. h. I did
not see the female of this.
No. 8659. Prunus fremontii Wats.
This is called "wild apricot" in this region.
It is a many-stemmed bush 5 to 8
ft. h. It fringes both sides of the wash
in Box Cañon for a couple of miles
with some interruptions. Its leaf looks
more like that of an apricot than a
Peach. Its young fruit is minutely
pubescent. See p. 122; p. 128.
No. 8660. Prunus fremontii Wats.
Sterile shoots of 8659.
No. 8661. Gilia stellata Hel.
Cor. very pale blue.
- Quercus Engelmannii. 3 or 4 bushes.

No. 8662. *Eummenanthe penduliflora* Bth.
Ovary covered with stipitate glands and very
short spreading bristles. Cor. very pale
cream-white. Fil. glabrous, $\frac{1}{2}$ length of
corolla; style short, its lobes curled, the stig-
mas terminal, the whole about length of
stamens. Rare.

-*Gilia*, no. 8654, cont. Cor. lobes obtusish,
those in 8654 subacute.

No. 8663. *Gilia*

Sandy wash. Cor. lobes ovate, acute. Cor.
lavender, throat dull white with pale
trident splashes of pale yellow,
about this shape.  ^{↑ 5} of pale yellow.

Tube cor. red-purple inside. Stam-
ens inserted at sinuses; anthers blue.

Ovary glabrous.

No. 8664. *Phacelia distans* Benth

Stamen fil. with
a scale on each
side at base,
the edges approx-
imating in such



a way as to appear joined and the fil.
arising from a sac. These scale-like
appendages are dilated at summit and
curved inward. This *Phacelia* is
extraordinarily abundant in Box Cañon
and Blair Valley. It takes the protection
of bushes. Every *Baccharis* bush is filled
with it. Under such conditions it
grows taller than in the open, up to
2 or 2 $\frac{1}{2}$ ft. high. A low *Comandra* bush
will be topped with its flowers, so
that a stranger might think the
thorny bush were flower-bearing so
freely does the *Phacelia* interlace
every part of it and blossom
on the periphery of the shrub.
Fls. deep blue. See p. 122.

No. 8665. *Cassia covainii* Gray.

Low many-stemmed legume (2 ft. h.).
Wash.

No. 8666. *Salvia cordnacea* Bth.

Very common in sandy soil.

No. 8667. *Lupinus sparsiflorus* Bth.

Cor. blue, banner center dull white; changing to a defined red-purple.
Sandy wash.

No. 8668. *Ephedra*

Bush in wash 5 ft. h. See p. 124.

No. 8669. *Oxytheca Chrysantha chabrieri* (Gray) ^{Wats.}
Sandy wash.

No. 8670. *Layia glandulosa* (Hook.) H. & A.

Rays pure white, 5, 5, 7, 9, 7, 7, 8.

Sandy wash. See p. 124.

No. 8671. *Lotus glaber* Greene = *L. scoparius* var. *bracteatus* ^{Gray}

Cattle browse and use feed. See p. 123.

- Walls of the cañon covered with
Eucalia (no.), Barrel
Cactus, Short Cylindric Cactus with red
flo; Cholla; "woolly" Cholla; Slab-pan Cactus
with red flo; *Yucca arborescens*;
Calyptridium monandrum Nutt. White Sage
(*Salvia* no. 8405.)

- *Larrea tridentata*. The McMullens say the Mexicans call this "heather-and-gum", which is their mis-understanding for *Hidexidos*. McMullen asked a Mexican what the word meant and he replied: "The thing that stinks for three days." I do not recall exactly the McMullen's way of pronouncing it but they began "Heather-".

Economic Uses of Shrubs.

- *Ephedra* no. 8668. Used as a tea. First brew passable, second better, third fine. Indians use it as a liniment. Browsed by cattle.

- *Atriplex canescens* (no. 8648). "This is the finest stock feed in this valley. Stock eat it - but when it comes into seed. It has a sort of 4-winged seed. But in winter they will nibble it down and after the leaves go they chew the finer tops. Stock eat it more or less all the while" - James McMullen. The colony of this species in the lower part of Mason Valley, 20 acres pure, shows effect of browsing.

- *Salvia* (White Sage, no.), the young or new leafy shoots are cropped, about 6 to 8 inches taken.

- *Agave deserti* ^{Engelm.}, stock take the flowers.

- Cows will work on shoulder over a stalk until they tear it down. The leaves are saporous and are used as a soap substitute by the desert settlers.

- No. 8672. *Streptanthus* = *Caularthus* (cf. p. 202 infra)
Thelypodium cooperi (Wats.)
 Stems* as well as pods tortuous and
 actually climbing a little.
 * = branches, more than main stem.
 Fls. dull white, small. See p. 123.

- No. 8673. *Peucedanum mohavense* Eng.
 Stems ascending or procumbent.
 Dry rocky soil. H. A. Dutton. See p. 125.

- No. 8674. *Orithyrea californica* Harw.
 This crucifer grew in sandy soil.

- No. 8675. *Gilia bigelovii* Gray.
 Cor. white. Style deeply 3-cleft (a little
 more than half-way), its stigmas a
 little below the anthers. Stamens with short
 filaments, inserted a little above middle of
 tube. The stigmas are of course linear and
 their tips are below the anthers.

- No. 8676. *Thelypodium lasiophyllum* Greene.
 This crucifer is rare and grows in pro-
 tectum of bushes. See p. 124.

- No. 8677. *Leptosyne* See p. 124.
 No. 8677a. *Lotus strigosus* Greene.
 Prostrate in the sands. Fls. brick-red,
 yellow at first.

- [No. 8690. Cont. *Juniperus* at
 Some of the bushes were heavily loaded
 with berries and were on this account
 white. This whiteness occurred only
 or at least in any degree on one side
 only, namely the northeast half
 the bush, i.e. I take it, away from
 the prevailing winds.]

- [No. 8536. This crucifer was found
 almost everywhere in the desert where
 moist or semi-moist conditions
 obtained.]

No. 8677b. *Ephedra*

Coll. H. A. Dutton.

- No. 8677c. *Thelypodium lasiophyllum*
lunum (H. & A.) Greene, var. *utahense* Jepson

Cont. from bottom p. 98. In addition
 there is the interesting "beach"
 zones of flowers of the lake bed - the
 zone of yellow (No. 8678) and the zone
 of blue (*Scleria cordacea*). There can be
 seen for 1 to 2 miles.

- Blair Valley is a roundish valley, about 4 miles across, with a mesa sloping very gently to a lake bed at the north side. This lake bed is locally known as Filaree Flat, because covered with a thick growth of Filaree. The westerly end is now a cloth of gold with Baeria.

no. 8686. This is a small plant with fine stems and small heads but growing so thickly that it results in a mass phenomenon of yellow and moisture. The soil varies in spots. Where the patches of Baeria have passed the zenith of flowering they are dull gold; where just coming into flower they are bright yellow. Under the dazzling desert sun the place glows like a sheet of copper, beaten in some places, unbeaten in others. At the other end rise from the golden

floor mesquite trees - maybe a dozen - pleasantly disposed. This scene impresses my mind with great esthetic pleasure.

* *Erodium cicutarium*.

pleasure.
Cat. p. 97.

no. 8678.

Malacothrix globata

Ligules a beautiful lemon-yellow. Forming a zone of color below the *Salvia carduacea* on the Filaree Flat "beach line". See p. 124. See p. 102.

no. 8678a. *Lycium cooperi* Gray.

Thick rounded bush ^{5 to 6} ft. h. Only 3 or 4 bushes seen, both Blair Valley and Cox Canyon. Branchlets very divaricate, and even turned backward.

no. 8679.

Sandy mesas.

no. 8680. *Orthocarpus purpurascens* Benth.
See p. 124.

Filaree Flat. Only a few individuals. det. A. S. G.

no. 8681. *Minimus fremontii* (Benth.) Gray.

Cor. less deep in color than in no. 8580 at Vallejo. Sandy mesas. cf. 8797.

no. 8682. *Plagiobothrys arizonicus* (Gray)

Sandy mesas. Stems diverging.

no. 8683. *Acrotopappus* See p. 125.
~~*Sphaerocephalus* Gray~~

Just coming into leaf. Rounded bush 1 to 2 ft. h. One of the dominant mesquite bushes in Blair Valley. See p. 118.

- no. 8684. *Malacothrix glabrata* ^{C. 2100 ft.}
 Rays a. beautiful clear lemon yellow.
- no. 8685. *Barria*
 Yellowing "Filaree Flat" on west side.
- no. 8686. *Astragalus didymocarpus*
^{var. dispersiflorus Jepson}
 H. + A. Filaree Flat. Fls. blue, pale.
- no. 8687. *Cryptantha decipiens* Benth.
 Sandy mesas.
- no. 8688. *Phacelia distans* Benth.
 Fls. blue. Sandy mesas under bushes.
- no. 8689. *Thamnosia montana* Torr. &
 Frem. Forms a low broad bush 2 1/2 ft. h.
 Fls. indigo blue. See p. 125.
- no. 8690. *Juniperus*
 See p. 125.
 Cont. p. 97. Bushes 5 to 7 or mostly 10 ft. h.
- no. 8691. *Dicheostemma multiflorum* (Benth.)
~~*Brodiaea capitata*~~ Heller
 See p. 125.
 Rare. (*Puccinia nodosa* Ell. + Harkn. on it.
 Det. W. C. Blasdale.)
- no. 8692. *Thysanocarpus curvipes* Hook.
^{var. *eradiatus*}
 Common; protection of bushes mostly. See p. 126.
 See also p. 193.
- no. 8693. *Allium fimbriatum* Wats.
 Crests 2 to each ovary lobe, fringed a
 little. See p. 125.

* See p. 125

- no. 8694. *Microseris linearifolia*
 Sandy wash. See p. 125, and 126.
- no. 8695. *Plantago*
 See p. 128.
- no. 8696. *Senecio californicus* DC.
 Sandy mesas.
- no. 8697.
 Rays pure white. Sandy washes.
 Very attractive neat flower which con-
 stantly engages one's interest.
- no. 8698. *Monoptilon bellioides*
 (Gray) Hall
 Rays pure white, and much re-
 sembling 8697 in general appearance
 of heads.
- no. 8699. P
 Rays and disk yellow, changing to
 white. This is a dif. thing or con-
 dition from aging white or aging
 in color.
- = A. Vaseyi Wats.
 no. 8700. *Astragalus metanus* Jones
 Det. P. A. Rydberg.
 Cor. purple. See p. 126.
 = *M. marigima* (Torr.) Wats.
- no. 8701. *Urtica serotina* Greene.
 Three pit. like glands to flower, one opp.

- each per. segment. Fls. dilated downward.
inner per. dull white. *Sulphurea versatilis*. See p. 126.
with very broad green veins.
- No. 8702. *Arabis pulchra* Jorner var. *gracilifolia* Jones
Rocky cañon. Fls. purple. Single plant seen.
- No. 8703. *Sotragalno* Vaseyi Wats. See p. 128.
Fls. purple. Only a single individual seen.
- No. 8704. *Euphorbia melanadenia* Torr.
See p. 127.
Rocky wall cañon; stems woody at base.
- No. 8705. *Salvia apiana* Jepson.
White Sage. See p. 127.
- No. 8706. *Antirrhinum*.

sandy wash.

- No. 8707. *Eriogonum fasciculatum* var. *poliferum*
Common. See p. 127.
- No. 8708. *Philibertia heterophylla* Jepson.
Coll. H. A. Dutton. See p. 127.

Economic Uses Shrubs.

The "Yaqui Plant" of McMillan is "Yucca" and turns out to be *Yucca whipplei*. It is a bar plant.

Croton californicus is said to be a

lax plant.

- No. 8709. *Euphorbia albomarginata* T. & G.
used for rattlesnake bite. See p. 127.

- Blair Valley is a rounded valley with a mesa sloping very gradually to a flat at the north which is a former lake bed, and is called Filaree Flat (*Erodium cicutarium*). On the southern and westerly sides there is a good deal of *Juniperus* (No. 8690), and *Yucca mohavensis*. *Larrea tridentata* is one of the dominants. Rabbit Brush (No. 8685) is also one of the dominants. Towards Filaree Flat, on the mesa southwesterly *Hymenoclea salsola* is one of the dominants. *Krameria* occurs. The *Eriogonum* (2 to 2 1/2 ft. h. with strongly but closely erect stems forming a sort of gathered broom, with barbed inflorescence axis is neither in flower nor in fruit) occurs frequently ^{on the mesa} towards Filaree Flat. Cholla Cactus up to 6 ft. is common. Barrel Cactus occurs. *Atriplex canescens* occurs southwesterly from Filaree Flat on the flat; heavily browsed back. About Filaree Flat is a "beach line", the upper beach, a

breadth of 40 or 50 ft. being occupied by a pure zone of *Salvia Candollea*. This blue zone is very impressive and may be seen for a mile away. Below it is a partial zone of the yellow fld.

(No. 8678). The flat itself at the west end is copper and gold with a broad expanse of *Baeria* (No. 8685). It

is one of the remarkable sights seen on this trip, the most marked of any for beauty. The day is sunny and calm, the wide expanse shining yellow or varying to beat copper where the flowers have passed their apex of flowering; at the westerly end of the flat the golden lawn is set with Mesquite trees, their bunches spaced with a certain order as if spaced in an orchard. This effect of plan gives a finish to the scene and makes it entrancing; it is a cup of very intoxication as one drinks in the scene.

As if this were not enough new de-

lights await us. We walk south westerly on the mesa to the right of a butte on the mesa table. Here is a delightful garden of *Mimulus* (No. 8681) and *Baeria*

(No. 8685). This *Mimulus* am-
purples the mesa as if in delicate ornamentation, not in solid sheets but as in a natural garden. On this area is scattered (No. 8683

, *Cholla Cactus*, *Larrea tridentata*, *Eriogonum* (described on p. 101, perhaps *E. hermannii*).

This *Mimulus* garden occupies a space about $\frac{1}{2}$ mile wide and 1 mile long. I have never elsewhere seen so much of it. It stops as a dominant at about the middle of the butte as we go south westerly towards Box Cañon.

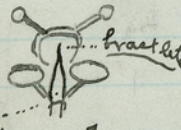
Acacia greggii. common

Calyptridium monandrum

No. 8710. *Agave consociata* Tral.

Forms a dense mound, circular, 12 ft. diam, blue-green plants. Stalks slender.

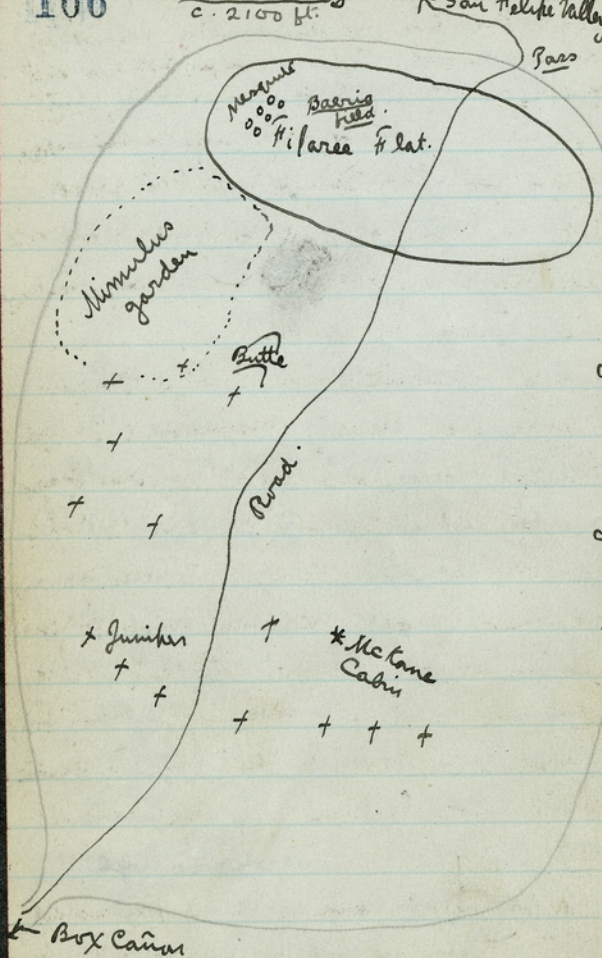
- Cont. from p. 78. *Caryophyllaceae* (no. 8721) is a very abundant part of the grassy veg. For other plants on the floor see numbered spurs and economic notes.

- *Stillingia* (no. 8644), the spike has 3 or 4 ♀ fls. at base, above stamens →  which are the ♂ fls. rather closely set. Each ♂ fl. or single cluster

consists of a bract bearing in its axil 2 glands and a median pedicel which bears 2 fore and aft bractlets, from between which 2 stamens diverge, right and left.

- *Calyptridium monandrum* Nutt., common on the valley floor. Same as no. 8589.
- White *Layia* (no. 8670) of Blair Valley also occurs here.
- *Acacia greggii*, common.
- *Chilopsis saligna*. Used as fence posts by settlers. McMillen says posts are set which have been in ground here for 35 yrs.

- The first settler in this valley was Old Man Mason. He lived in an adobe home at lower end of valley where the water goes out. He married a squaw. He was eventually "run out". We asked why. "Well", said McMillen, "his squaw died and he had nobody to work for him!" It seems that he had about 200 cattle, mostly unbranded, and when the big cattlemen came his cattle disappeared. An unbranded steer has no chance in such a country. And so he lost out. But he had a rather promising place; an orchard of peaches, apricots and other fruits - and this at a point where in but minutes climb you can look all the way down the hot Vallecito and out into the burning Colorado Desert. no. 8711. *Agave deserti* Engelm. whitish green plants; stalks coarse. Cf. p. 78



natural park acquired by McMillan
 long sharp ridge across

- James McMillan says: The city council of San Diego entered into negotiations with Hatfield, the rain maker, because of the distressing state of the city, water supply in 1915-1916. The "result" was the great rainfall of Jan. 1916 which took out all the bridges in western San Diego Co. and washed away many ranches, wiping out their most fertile acres. These farmers who were so heavily damaged brought suits for damages against San Diego city amounting ^{to millions of dollars} in the aggregate. This struck me as exceedingly pitiful and I laughed most heartily over it; - for it seems that when the suits were brought the city would not admit having "contracted" with Hatfield to make it rain! It certainly is an amusing story.

The wild wind which annoyed us at Vallejo stopped for one day at Maam Valley and then began again. The winds have been high and cold. Camping

in the open, cooking exposed to the elements, has its disadvantages, but we get along. The view southward from our camp is fine. The mountains are thrown into big bold masses, the nearer ones gray, the further ones blue, the distant ones purple, and under the changing lights give a sense of continuous pleasure.

— Frequently one hears a deep grinding sound increasing to a roar, passing over the desert mesas. It has an ominous sound, heavy and vindictive, tho there are not quite the words, a sound of fierce grinding attack. It is a whirlwind and as there is now no dust to lift, the effect on the mind is quite different from the same phenomenon in summer.

— We broke camp about 4:50 and ran up the difficult Box Canon to Blair Valley and thence over the low pass into the lower San Felipe Valley where we make use of a settler cabin which is not occupied now.

There occurs here: c. 2000 ft.:

Rabbit-Brush (no. 8683).

↑ same as

Yucca mohavensis, common.

Larrea tridentata, abundant.

Minimus (same as no. 8681), common.

White *Lagotis* (same as no. 8670). This is very common, and much finer than in Blair Valley or Mason Valley.

Oenothera (same as no. 8713), the one with most long-lanky habit, very open.

Salvia columbariae Bth.

Gilia (same as no. 8653); this is the more common species of the region as compared with 8654.

Lycium cooperi, a colony in wash, 6 to 8 ft. h!

Hymenoclea salsola, abundant Cholla, Green.

Salvia cordifolia, abundant.

Acacia greggii, frequent.

Abronia (same as no. 8575 of *Valley*)

Crucifer (same as 8674)

* See p. 109.

- Agave ^{no. 8711}, in lower San Felipe Valley, it occurs ^{see p. 108.} along the old stage road at the point where we come down into the valley from the rocky pass separating Blair Valley. There does not seem to be but one Agave here - it looks like the species common about our camp in Mason Valley. I did not see an Agave passing thru Blair Valley.
- The riot of bloom in San Felipe Valley is much greater than seen elsewhere - at least this side the main range. *Salvia carduacea* forms miniature forests, - heavy colonies that are most showy.
- South of east, Pium Mt. rises heavily, the zone of pium on its northerly slopes showing dark from here. Just west, above us, is Granite Mt., also with piums apparently. Right north in the extreme distance I imagine I see Santa Rosa Mt. But it may lie too far east for Santa Rosa. ↑ (the mt. I see)

c. 1800 ft.

gipsan.

- ✓ No. 8712. *Thelypodium lasiophyllum* var. *utahense* ^{gipsan.}
Spider Plant, I call it. Strange if not wind adaptation to aridity.
- ✓ No. 8713. *Oenothera refracta* Wats.
Stems coarse at base but slender-branched above, and branching in such a way as to form a skeleton-like structure. It always reminds me of a young growing plant ^{of various species} which runs up an outline framework but fills out vegetatively later and all this prior to flowering. But this lanky plant is in full flower! I call it Lanky or Lanky *Oenothera*. It is not nearly so common as *Oenothera* no. 8717, or rather it is rare compared with that. Notice the red leaves and green stems, red buds and reddish branchlets.
- ✓ No. 8714. *Eriogonum thurberi* ^{See p. 128.}
Perhaps *E. thomasi*. Sandy floor. Common.
- ✓ No. 8715. *Cryptantha barbigena* Greene.
Common. Sandy floor. See pp. 78, 128.

c. 1800 ft.

No. 8716. *Plogiobothrys arizonicus* Greene
This *Plogiobothrys* is common. (Det. R. F. H.)

No. 8717. *Oenothera bistorta* Nutt.

See p. 128.

Very abundant. Stems decumbent. Sandy valley floor. See p. 78.

No. 8718. *Lupinus bicolor* ssp. *microphyllus*

Extremely abundant on the valley floor.

Fls. blue with white center to banner extending to top. See p. 78. See p. 114.

No. 8719. ~~*Gilia*~~ *Gilia Lemmonii* Gray.

See p. 78

No. 8720. *Pectocarya penicillata* A. D. C.

Sandy valleys, common.

No. 8721. *Lastarriaca chilensis* Remy

Sandy valleys, exceedingly abundant. See p. 104.

No. 8722. ~~*Echinocystis*~~ *macrocarpa* Greene.

Sandy valleys. See p. 128.

- I found the settler James McMillen to

be a very keen man and with a good brain. He has the prospector's fever in his blood and talks and dreams of mines, prospects and oil strikes. His grandmother was a sister of General Winfield Scott.

San Diego Co.

* See p. 109. c. 2200 ft.

No. 8723. *Lolium rigidum* Greene.

Forming a bushy plant 15 to 22 in. h.

and undoubtedly perennial. Ligula much exceeding keel, the banner longer than all. Fls. large and showy for a *Lolium*, lemma yellow. Sandy wash, frequent.

No. 8724. *Layia glandulosa* (Hook.) H. & A.

Rays white. Abundant. Maturing a single head on its main axis. This now sending off its achenes! From the basal rosette has arisen a large number of proliferous stems making a grand basket of white fls. The fls. are pure white with yellow disk and are most attractive. See p. 129.

Sandy mesas. Only 1/3 the plant taken!!

No. 8725. *Microseris linearifolia*

Head of pale yellow fls. 3/4 inch broad, the ligules surpassed by the lanceolate bracts. Only 1/2 the plant taken. Sandy mesa.

No. 8726. *Descurainia pinnata* (Walt.) Britton

1/3 plant cut away. Sandy mesa. See p. 128.

No. 8727. *Baeria* [Missing] * See p. 189.

- *Juniperus* (same as no. 8690).
- White Sage on the hills (*Salvia*)
- *Plagiobothrys* (same as no. 8716).
- *Oenothera*, abundant, same as the common one in Masan Valley, no. 8717.
- *Lupinus*, abundant, same as common one in Masan Valley, no. 8718.

No. 8728. *Condalia parryi* W. & A. ^{See p. 128.}
Bush, thorny, 4-6 ft. h. Hillsides.

No. 8729. *Malacothrix* (Discarded, insect damaged)
Heads a beautiful lemon-yellow! Very abundant, coloring spaces a red og. here and there. Ascending stems.

No. 8730. ^{*Linantus*} *Leavenworthii* Gray.

Same as no. 8719

No. 8731. *Minulus fremontii* Gray.

Same as no. 8681. Very abundant!

No. 8732.

Composite of the sandy mesas; prostrate.

No. 8733. *Eriophorum micrantha* Nutt.
Eremocarya micrantha Greene.

No. 8734. *Platyspermum californicum* Bth.
Plants very rank, many twice size the one taken, i.e. twice thick. Sandy mesa.

No. 8735. *Plantago*
Sandy mesa

No. 8736. *Baeria*
Sandy mesa.

No. 8737. *Lepidium lasiocarpum* Nutt.
Sandy mesa

No. 8738. *Calyptridium monandrum*
Sandy flats. See p. 129.

No. 8739. *Pentstemon centronthifolius*
See p. 117. San Felipe Valley near
Santénac Cañon.

- This morning Sutton "saved his bacon". That is he ate everything else, keeping the bacon to the last. Small children will scrape the chocolate off their cake, and eat the chocolate last. As a small lad I ate the food on my plate that I did not like and then proceeded to enjoy myself! Somewhat had I this habit that I practiced it when we were guests in other houses. It then happened that our hostess, watching my plate proceed, gave my protest to fill up again my plate with the detested food! Such are the tragedies of youth!

* also taller and broader.

The San Felipe Valley bends southeasterly or southerly into a large arm which is separated from Blair Valley by a rocky ridge with buttes on it. It is in this part of the valley which must be very dry and arid, that settlers are squatting the last year. It is now one wonderful flower garden, especially in the southerly part, and particularly beautiful within the cleared enclosures of the settlers where *Salvia canadensis* gives its blue against the clear, ^{but deep} lemon yellow of (no. 8729).

no. 8731, Or on the mesas *Minimus* gives faintly distinction to the wild garden, whilst the white *Lupinus* (no. 8724) gives an effect of purity which is akin to showiness, so floriferous are the plants, so abundant the number of individuals. *Horvitz* (same as 8595) occurs in fine bloom.

The settlers' cabin is a tight little home which gave us most welcome shelter from the biting cold wind from the west. It afforded an excellent view of the country all around (see last ¶ p. 110). The cabin

inside was well furnished for the wilderness, and as neat and orderly as possible.

This morning we botanized about the cabin and enjoyed the scene. Looking across the valley east we see a ^{small} rocky butte rise off the mesa, - distinctly the vegetation changes - there is no *Cercocarpus* on the butte. Similarly when the mesa reaches the foot of the mountains the aspect is as suddenly changed.

We "break camp" at 2:50 pm. and run north towards Sante Fe Barren, the deep and narrow inlet easterly for San Felipe Creek. Near this gorge the ^{nearby} barren flat is featured by a ^{otherwise} great association of *Pentstemon cuneifolius* (no. 8739) which is nearly pure. For about five miles it is very abundant, but the pure stand is about 1 mile square if not more. I have never before seen so much of it. We run on to San Felipe Creek ford and I note the following:

Atriplex canescens, 2 to 4 ft. h., very

much eaten down. It occurs in large stands in the San Felipe Valley from this point westward for two to four miles, often pure stands.

Arceuthobium tridentata - abundant as always.

Hymenoclea salsola - abundant.

Lycium Cooperi - 12 ft. broad, 5 ft. h., infl.

Arceuthobium greggii - This continues to increase in amount until on the north side of the valley one finds a pure stand $\frac{1}{2}$ mile wide and 1 to 2 miles long. I have never elsewhere seen a distinct pure association of this size of this species.

Prosopis juliflora var. *glauca*, very abundant. Also *Acacia greggii* (same as 8683 and abundant?).

About where the Catclaw association is most prominent on the north side we look into or over the great green ciuegas of the San Felipe Valley. They are very extensive and make the San Felipe Ranch a fine, in this region, unsurpassed cattle ranch. In addition nearly all the species listed above are forage plants!

At about this point, too, in going west up the valley we have a fine view of the Populus Fremontii grove on the southern side. These Cottonwood trees are beautifully spaced - that is to say irregularly but as if an artist had disposed them - they make real Corat pictures. As soon as we came in sight of them our feelings were stirred. They are in one sense the only trees of the desert. In the sense of real trees they are the only trees. Their beautiful crowns rest the eye. One could look and look and never weary. Their color is different from other desert green and their presence always speaks water.

We pass the fork to the San Felipe ranchhouse and continue ^{road} up the valley which continues to narrow. Most interesting are the "aprons" fertile and oak-covered, which fill the cañon mouths. A splendid large one, which melts back in the haze into the mystery of the cañon, is opposite and west of the

San Felipe ranch-house, a cañon on the ^{E.} slope of Volcan Mt. At the point where the valley begins to narrow we see a village on the opposite side and go across to see it. It is quite deserted and is the former village of the San Felipe Indians. The church, an interesting little structure, has its walls largely intact. It is of adobe and the cross still raises above its front. The dwellings are likewise of adobe, well built and picturesque and fundamentally sound tho a good ^{deal} damaged by storm. Whether this is the ancient village site I do not know. The Indians have been removed to the various reservations on the west side of the mountains.

Further up, it is now a valley cañon, a lovely aporn shows at the mouth of a cañon. It is delightfully sprinkled with ^{live} oaks - disposed in great ^{one} ^{may} ^{say} if such a saying were not offensive to the mighty mother Nature: On the lowest part of the mesa gray Catclaw ^(Acacia greggii) predominates.

Above, the hillslopes are purple with ^{dense} Chaparral which consists chiefly of *Adenostoma sparsifolium*, the secondary species being, *Ceanothus* species (nos. 8532 and 8533), ^{two} *Arctostaphylos glauca* and *Rhus ovata* Wats. (*Rhus ovata* reaches the borders of San Felipe Valley and extends further from the coast than either of the other two San Diego coast species.

We run on to Warner's Hot Springs. An Indian, Bernardo Segundo, comes into camp. He calls his people Wei-ist-tum. They live on the west slopes of Hot Springs Mt. and right and left thereof. He gives me the following names for the plants which I have collected: I take down his names as carefully as possible, often asking him to repeat. The names are of course written phonetically. —

Indian Names of Plants.

- Kool = Mentzelia no. 8652. Seeds gathered for food.
- Poll-witt = no. 8651. Seed gathered.
- Cow-nuckle = Simmondsia (no. 8665)
- Pal-net (Poll-net)* = *Salvia* ^{cardinalis} _{acea.}
- Moo-you-bish = *Phacelia* (no. 8664), young shoot used for food.
- Moo-oo-yish = no. 8655. Seed eaten.
- Chow-wali-hot. = *Prunus* no. 8659. Do not eat. This is the Desert Apricot and that it was not used seemed to me remarkable. Perhaps he did not really know this particular thing for he inquired a second time as to where it grew.

* seed used (no. 8666) for food.

- Some things my informant had no name for, as no. 8672, but recognized their food value. "Things get too high-priced at white-man's store; we look to go out and gather our own (i.e. Indian) food. We have plenty food in the country if we go gather it."
- Before making a statement about anything, that is any plant as it was shown him he would reach down and break off the least bit and smell or taste, nearly always smelling it first but sometimes tasting it first. After which would pronounce judgment. He tasted the leaf of 8655. He smelled the leaf of *Stillingia* no. 8644 and said "It does not smell nothing to know." This is a plant of the desert and he has never seen as far as Vallejo.
- Kee'-wot. = *Lotus glaber* (no. 8671). Used for thatching Indian cabins. "Horse will not break". I expressed sup-

rise at this but he said it was gathered and made into close bundles and laid on. The stems are somewhat reed-like and it is undoubtedly the reed-like stems which are selected.

- Moo-yish = *Lycia* no. 8670 (seeds used for food. ^{white})
- Two-toot (Tu-tute) = *Ephedra*, no. 8668 ("good medicine").
- Taw-wot-hay = *Orthocarpus purpureus* (no. 8680). No specific used named.
- *Lycium cooperi* (no. 8676). He considered this the same as 8659; see p. 122. This he said has thorns which 8659 has not. It may be he throws all berry-bearing plants together.
- *Leptosyne* (no. 8677). This he said has two names: *Hov-yell* and *Taw-level*. No. 8678 he considered the same. The young rosettes are eaten.

- Ah-wot = *Pencedanum* (no. 8673). Root good for medicine.
- Wee-l (Weal) = herbage good to eat = no. 8694.
- Choot-sill = no. 8689. *Thamnos* ^{Tam. & Fragm.} *montana* Bark used as medicine.
- Eng-gwa-muckle = no. 8683. "good medicine". (*Acamptopappus* ~~*sphaerocarpus*~~ ^{*Gray*})
- Ees-swot = *Juniperus* (no. 8690). Berries when dead ripe stored for winter food.
- E-shal'-wro-sa = *Allium* (no. 8693) *fimbrialum* Wats. "Belongs to Kiote" he said. He was a bit confused when he said ^{it} but I hastened to assure him that I understood.
- E-sal-way = *Brodiaea capitata* (no. 8691). He said there were several other kinds of this, in which the bulbs were eaten. One other in which there were two bulbs, one on top of the other. The bulbs are not stored; and

are eaten raw or cooked.

- Shi'-seel = *Thysanocarpus* (no. 8692). Seeds first cooked, then pounded up fine, then put in water. Makes "ice-cream" for Indian. By this he means that it forms a cooling drink. "Makes body cool in summer time". Apparently any cruciferous seeds are used for this since he calls *Lepidium* no. 8737. By the same name. It interested me that he recognized the family Cruciferae so accurately.

- E-seel-way = *Urtica* (no. 8701). Bulbs eaten.

- Ho'-yeetl = no. 8694

- E-lil-kwish = *Astragalus* (no. 8700)
(poisons horses. The word may be the name of the poison and not the name of the

plant he said. (E-lil-kwish).

- Kway-e-tl (quay-e-tl) = *Philibertia* (no. 8708); flower-chestnuts eaten.
- Od-lock-il = *Eriogonum* (no. 8707).
He said this was not used for food. Did not give any use.
- Kaw-se-e-tl (Caw-se-e-tl) = no. 8705 (*Salvia apiana* Jepson)
Seed eaten.
- Kaw-seel = no. 8648, *Atriplex canescens*. Seed eaten. "Great good plant in the desert."
- Tem-el-hep-pee = *Euphorbia* (no. 8704), "great good medicine if one knows how to fix it". Temel = the earth, hep-pee = woman's breasts. The rounded form of the plant as I thought, but he also gives me the same name for the prostrate *Euphorbia* (no. 8709), so that it may be used as a medicine

to stimulate milk flow or to incite child-bearing.

[No. 8703. Same name as 8700.]

- E-el = Echinocystis (no. 8722).

Leaves, seeds, roots used

for medicine. Must know how to use it, since it is a powerful poison.

- You-liddle = Eriogonum (no. 8714)

Flower heads used as emetics; taken when it comes into flower, not in seed.

- Brythanthe (no. 8715) is another Mo-yu. herb. Herbage eaten when young.

- Tes-sa-ville (Tes-sä-veal) =

Seed used, - come out fine = *Oenothera bi-storta Nutt.* (no. 8717).

- Oo-yu-yell. = no. 8728. This is the thorny kind of no. 8659, see p. 122.

- Ah-seet = no. 8726. Ice-cream drink, same as no. 8695, p. 126.

- Moo-yiah = *Layia* (white), no. 8724.
Seed eaten.

- Hell-e-wit = *Calyptridium monodrum* (no. 8738). No use was given for this, I think he said the seeds were not eaten.

The above notes were given me with an appearance of great conscientiousness by Bernardo Segundo, the Indian. His interest is chiefly but not entirely medical. He said: I work for white man near Elsinore. His wife get very sick. Doctor say she live only to next day. Then say, what can I do. I tell him: I try. All these medicines of white doctor is good. Very bad. You must put all away. I give woman hot water. In one day she get better. Doctor come again and give her more medicine. She get very sick some more. White man see I right. Stop medicine of white doctor. I give hot water some more. Woman get well. All this put in paper that Indian cure woman. White Doctor

have me arrested. Judge he say I work
for white man and I don't go about
doctoring for pay. Some white people
get very sick and men come to me
to say: You make him well. I say,
I can not cure. I might get ar-
rested! White doctor he not know.
White doctor just make guess as to
what is matter with sick. Too many
medicines. He mix medicines. Indian
know better. Always one medicine for
one sickness. Indian has herb for
all sickness. - Three spoke Bern-
ardo Segundo, the Indian.

J. A. Ream, Superintendent of the Warner
Ranch, says Bernardo Segundo is not very
reliable. That he likes to spin stories
for the sake of making an impression.
Perhaps he is not a very trustworthy
workman on the ranch, which would give
him a poor reputation. If his interests
in the native life are genuine that
would possibly make him a poor worker

at drudge labor. He struck me as being
conscientious. He often said he could not
remember. He seemed careful in his state-
ments. I appealed to his sense of pride
in his own people and their herb lore
and I think not in vain.

- A few miles below Warner's Hot Springs
is Puerta Cruz, an outlying mission station
or "assistencia" to Mission San Luis Rey,
as was Pala. Nothing remains of it
now but remnants of adobe walls.
Bancroft would probably tell when
this was founded. I did not go down
to see it. But this spot was settled
very early. It was ^{Warner's Hot Springs} Agua Caliente until
recently. J. A. Ream showed us peach trees
in front of the ranch house which
were planted, it is said, in 1830. They
certainly look venerable. This information
he had from Mrs. Schmittkaffir who
is now quite aged and as a girl of
16 came across, overland, via the
Colorado Desert in 1854 with her par-

ents, by ox-team. When they arrived at Warner Ranch they stopped for a month to rest their oxen. An Indian chief told Mrs. G. that the pear trees had been planted 24 years previously. The original Warner ranch house is a mile or so east of the Warner ranch house which was a Butterfield stage station. The adobe is still standing. Many years before this, the Indians planned a grand attack on the whites, i.e. the Spanish. An Indian servant girl betrayed the secret to Don Juan Warner. He sent his wife and children to Santa Ysabel, which was then the station for a Mexican cavalry force, and remained behind at the ranch with ^{himself} a negro servant boy. At the appointed time the Indians made the attack, in small forces, not expecting opposition. Warner and his negro killed all of the Indians except one, who fled to Agua Caliente for re-enforcements.

Meantime Warner retreated to San Ysabel. According to the story as given me Warner went to the northern part of California and did not return to Warner Ranch. This ranch consisted originally of two grants: San Jose del Valle and Valle de ^{San} Jose. By his marriage with a Spanish woman Don Juan came into possession of one of the grants in this way and acquired the other, uniting them as Warner Rancho. This whole relation needs to be checked against Bancroft's History.

J. A. Ream took us up on Hot Springs Mt. as far as the road goes which is a bit above Eagle's Nest. In the Canada Pinos, a beautiful sharp wooded cañon, are fine *Quercus chrysolepis*. We measure one tree 90 ft. h. - circ. 14 ft. at 4 ft. It is on a sharp cañon side and in its crown conforms to the cañon. It is ^{very} erect, yet spreading to take full advantage of its situation. It has

two forks at about 8 ft. One of these
forks, the outer, forks into 3. Another tree
further up the cañon on a little flat is
91 ft. h., circ. 15 ft. 9 1/4 in. at 4 ft; crown
70 ft. x 96 ft. Both trees are quite
remarkable and very very round,
not injured by fire or ax-scars.

Chaparral on Hot Springs Mt.

It is dense and consists of:

Desert Cedar (*Adenostoma sparsifolium*).

This is called Red Shanks by J. A. Ream,
a preferable name if not in use
elsewhere. It is abundant and be-
comes on the average 14 to 16 ft. high.
Ream says it gets to be 20 ft. h.
Its roots and wood make excellent
fuel.

Islay (*Prunus ilicifolia*). Crown sprouts
freely.

Caenothus perplexus. Ream says

tourists call this Breath of Heaven.

This sounds like a parlor name.

It refers to the ^{heavy} sweet odor of the fls.

It is common.

Caenothus divaricatus (cf. also no. 8531).

This becomes 6 to 8 or 10 ft. h. and
forms dense thickets, especially on north
slopes. It is very spiny and Ream
pays his compliments to it continually,
having considerable experience with it in
road-building work. It crown sprouts freely.

Adenostoma fasciculatum. This is 4 to
8 ft. h. and is the dominant shrub,
especially on south and west slopes.

White Sage (*Salvia spiana* Griseb.).

Common.

Arctostaphylos (no. 8744), frequent.

Heteromeles arbutifolia (rather more
narrow-leaved than in the north).

Only a few bushes noted.

Gayya sp.

Cercocarpus

Forest Trees.

- *Abies concolor* - at 4500 ft.

- *Pseudotsuga macrocarpa* " "

- *Libocedrus decurrens* " " and a little
below.

- *Plantanus racemosa* ascends to about
4000 ft.

- *Pinus Coulteri* - at about 4000 ft.

- Near the highest point reached we can see Mt. San Jacinto in his snowy mantle far to the north. Northwardly Santiago Peak in the Santa Anas rises his great rounded peak finely. West is Palomar, nearer is Aguanga Mt., south is Cuyamaca Peak.

Chaparral, cont. from p. 135

Quercus chrysolepis becomes alpine forest scrub 10 to 18 ft. h. on north slopes.

Rhamnus ilicifolia - crown sprouts

- Artemisia tridentata, = Warner's Hot Sprs.

- We leave Warner's Hot Springs and run past Warner Ranch, turn to the left at the road forks and leaving the San Felipe Pass to our right we run thru a series of valleys that are filled with ^{Quercus agrifolia} oaks and as beautiful as anything I have ever seen. These oaks are in natural condition. The trees average large

but there are both young and mature trees, rising from a dense undergrowth, uniform and unbroken, of sagebrush. The dark green crowns of the oaks contrast with the gray sagebrush, forming a color combination which to me is most unique and very attractive. It is one of the most satisfying things I have seen this trip. This scene is backed by the purple hillside chaparral described above.

The road forks again. We turn right, leaving Grapevine Valley to the left. We continue thru the beautiful vales of oaks. These groves are characterized by their tall and narrow-crowned young trees. They spread in maturity - but all the trees are characterized by very high crowns rather than low broad crowns. The brush is ^{Gilia (no. 8746)} ornamented with ^{Phacelia} and ^{Nemophila} ^{no. 8747} and the whole scene is idyllic.

- No. 8740. *Athyrium pusillus* Greene.
Hot Springs Mt. 3500 ft.
- No. 8741. *Castilleja martinii* Abrams.
With 8740.
- No. 8742. *Quercus chrysolepis* Liebm.
This tree is 9 ft. h. See p. 134.
- No. 8743. *Valerianella*
With 8740. *Athyrium pusillus* Greene.
- No. 8744. *Arctostaphylos glandulosa* var. *drupacea* M. & A.
7 ft. h. Hot Spgs. Mt.
- No. 8745. *Rhus trilobata* Nutt.
3 ft. h. J. A. Reams, The Indians in
says: basket making select long shoots and
split the wood into 3 strands, the
cut being made so:  Hot Spgs. Mt.
- No. 8746. *Lyilia dianthoides* Endl.
Felipe Pass = *Thymanthus dianthiflorus* Greene.
San 1 into the head of *Grapenine* Canm.
= Warner Pass. 3200 ft.
- No. 8747. *Xenophila menziesii* H. & A.
With 8746. See p. 137.
- No. 8748. *Jarrovia pallida* Eastw.
With 8746. 7 ft. h. = *J. flavescens* Wats.

- No. 8749. *Salix laevigata* Bebb.
25 or 30 ft. h. pubes 35. Rough. Waxed bees.
- No. 8750. *Layia glandulosa* (Hook.) N. & A.
- No. 8751. *Cryptantha micrantha* Jtn.
Sandy wash. = *Democarya micrantha* Greene
var. *lepidota* M. & A.
- No. 8752. *Senecio californicus* DC.
Common in sandy mesa soil amongst bushes.
- No. 8753. *Haplopappus linearifolius*
var. *interior* (Cov.) Jones
Rosin Bush. Very abundant from Grape-
vine Spr. to Stewart Spr. Often the dominant
thing. Bushes 2-3 ft. h. Very floriferous.
Its stalks in serrated ranks. One bush is
estimated to have 1500 heads as a mini-
mum.
- No. 8753a. *Phacelia campanularia* Gray.
Rocky slope but in good soil under bushes.
- No. 8754. *Condalia parryi* (Torr.) Wats.
5-6 ft. h. Apparently not setting fruit.
Common all the way to Stewart Spr.
- No. 8755. *Isomeris arborea* Nutt.
- No. 8756. *Oenothera californica* Wats.

- ✓ no. 8757. *Azolla filiculoides* Lam.
slow water at Grapewine Spr.
no. 8757a *Chelanthus covillei* Maxson.
✓ no. 8758.

These two ferns grew in crevices in shade
rock

- ✓ no. 8759. *Chenopodium*
✓ no. 8760. *Scrophularia californica* C. + S.
moist spots at the springs.
= *A. crocalariae* Gray
✓ no. 8761. *Astragalus oocarpus* Gray.
Cor. pale sulphur-yellow; hardly any
"sulphur"; rather lami- yellow.
✓ no. 8762. *Condalia parryi* W. & A.
Grapewine Spr.

Stewart Spring, Grapewine Can.

- ✓ no. 8763. *Condalia parryi* W. & A.

Analina Spring,

- ✓ no. 8764. *Eriogonum fasciculatum* var.
poliferum

- Cont. from p. 51. no. 8544. = *Lupinus*
bicolor Lindl. Vallecito. This plant
collected at Vallecito! The notes correspond,
but the color (now gone) sounds ^{field} like *L. odoratus*.
- W. L. J., Aug. 1931.

About Grapewine Spring are the following:
Rosa Bush (no. 8753), very abundant,
esp. below (east).

Desert Apricot! *Quercus dumosa* (6 to 9 ft. h.)
Acacia greggii. *Rhus ovata*.

Quercus engelmannii scrub.

Pentstemon centronthiifolius, Bth.

Vitis quidiana Munson (bunch 5 in. diam.)

Cicuta in young leaf in stream

Agave desert. *Yucca whipplei*

Mertensia tridentata. *Yucca mohavensis*

Cholla.

Rhus

Hymenoclea salsola

This is a rather fine spot in an
otherwise unattractive region. The stream
is 2 ft. broad and 1 foot deep at
nearly 50 and flows over two falls
6 to 10 ft. h. The Grapewine Mine is
here; a tunnel in a hill.

- Rosin Bush
- *Peucephyllum* *centranthifolius* Bth.
- *Artemisia tridentata*.
- Rhus
- *Quercus engelmannii*

Beyond Stewart Spr. we run into the *Eucalyptus californica*, creosote bush, and "woolly" Cholla zone. A little below the point where the Santa Fe Cañon joins Grapevine Cañon we turn off the road a few yards and camp in a clear spot one or two rods square amongst the Cholla "trees". It is now a regular cactus country and the plants are so thick that camping spots are scarce.

The next morning just before the first sign of dawn the turtle dove begins her call. It is a sign I suppose for "Burr Cottontail" to take to cover.

Camp near junction Grapevine and San Felipe Creeks, just below mouth of Santa Fe Cañon. 24 Apr. (Sat.), 1920.

- After several hours strenuous work on plant drying, numbering and note-taking, we start south ^{for} up a wash which leads into the range that separates this (Grapevine Cañon) from San Felipe Valley. The wash winds gradually and by a regular grade up to a low pass whence we view the San Felipe Valley, Granite Mt., and Volcan Mt. The mountain range leading to Julian is plainly visible as also the cañon in which Banner lies. The middle portion of this wash ^{up} which we traveled is full of *Hypoxis emarginata*. ^(See p. 157, cont.) It is a dominant and gives a strong character to the wash. The gray clumps are impressive, 6 to 12 or 14 feet high and 5 to 10 or even 21 ft. broad. On the lower part of the wash the only bush is *Dalea spinosa*. The bushes of this are small. In this

Wash, from S. side Grapevine Cañon up to a
alt. c. 11000 ft. flooding ^{in "Wagon Wash"}
wash or along its rocky banks I
collected the following numbers:

No. 8765.

near Sentinel
Cañon.

Perfectly prostrate on the sand in
washes. Rays white. See p. 198a.

No. 8766. *Nemacladus*

Small plant, abundant in the wash
for 2 or 3 miles.

No. 8767. *Astragalus vaseyi* Wats.

Stems ^{many} now procumbent. Wash.

No. 8768. *Galium*

Rocky wall.

No. 8769. *Prunus fremontii* Wats. var. <sup>Var. pilul-
ata Jepson</sup>

This Desert Apricot is a rounded
bush, 5 to 10 feet high, with ^{many} erect
stems. It is rather abundant in
the upper middle part of the wash.

No. 8770. *Apocynum angustifolium* Nutt.

Shade of rocks and bushes.

No. 8771. *Lotus strigosus* Greene.

Prostrate in wash. Next of same habit.

No. 8772. *Coleogyne ramosissima* Torr.

Thick rounded bush 1 1/2 to 5 ft. h.

pass into San Felipe Valley, 24 Apr. 1920. 145

Sepals 4; petals none. Ovary enclosed in a close
sheath or sac which is densely silky
with long hairs inside, heavily clothed.
From this the style only is exerted a little
beyond its narrow aperture. See p. 147.

No. 8773. *Beloperme californica* Bth.

Low bush (2 to 3 ft. h.), 4 to 8 ft. long,
densely and intricately branched
forming a very close tangle. Wash.

No. 8774.

Rays white. Stems erect or ascending
forming a very low plant but not
prostrate. Washes, most characteristic
of them.

No. 8775. *Bernardia* ^{incana Mort.} ~~myricifolia Wats.~~

Shrub with many erect stems, 4 to 7
ft. h. Dark green foliage. Old stems
dark. Near head of wash, i.e. near pass
into San Felipe Valley. Sepals 3, spread-
ing. Stamen counts: 5, 6, 5, 7, 6, 6, 7, 7.
♂ flo. in an axillary spike which is
peduncled; bracts small. Carpels 3 or
4, 2 or 3, perhaps ? 4, fertile. See
p. 157

Camp near junction of Grapevine Creek
and San Felipe Creek, just below lower
mouth of Santanac Cañon, = Santanac Valley,
San Diego Co. c. 1100 ft.

No. 8776. *Eucelia*. (Discarded, insect damaged)

Mostly 2½ to 3½ ft. h. Rounded bush.
Inhabits rocky slopes of the hills and
mountains. Not found unless except-
ionally on sandy mesas or in washes.
It is the most characteristic plant
of the dry rocky hills and occurs
over hundreds of square miles. It
occurred in Box Cañon and Blair Valley.

No. 8777. *Viguiera deltoidea* Gray
~~*Eucelia*~~ var. *Parishii* (Greene)
shrub vasey + Rose

I notice this ^{shrub} only along the sheltered
rocky walls of cañons. 3 to 4 ft. h.,
rounded, as broad as high. It is
not abundant, tho frequent in its
chosen spots. Rays yellow, blotching
to white.

No. 8778. *Nicotiana trigonophylla*
Bank of cañon wash. 3 ft. h. ^{Dunal.}

No. 8779. *Cassia covarii* Gray.

24 Apr. 1920.

Sandy wash. Erect. Several stems from
base. *Fremontii* Gray.
No. 8780. *Chaenactis* (*unicolor*)
(bad insect damage - discarded 7/13/55 by RCB.)
Extremely abundant for miles, whiten-
ing the sandy washes and floors.

- Cont. no. 8772

Coleogyne ramosissima
Torr.



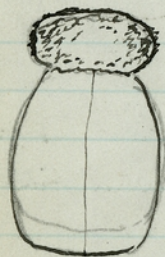
Style with a dense cov-
ering of long hairs at
base. Ovary with a
single ovule.

The enclosing sac is
glabrous outside. Its
internal hairs protrude
a little from its mouth,
so that, casually, the
style appears to have a ring of
hairs midway. See also p. 157.

No. 8781. *Lycocarpus Coulteri* Hook. & Harn.
var. *palmeri* (Wats.) Roll.

This crucifer grew up within a *Tranoma*
bush to a height of 2½ to 3 ft. Its

flowers are saffron yellow or dull yellowish red-brown. The petal blades are narrow-lanceolate attenuate. The ovary is strongly obcompressed, elliptic, white-canescent. The stigma is very large. The sepals are markedly



ovary.

are markedly emarginate above the middle - a character which should be used in the Key, it is so positive. Stems woody for about

1 ft., several from the base.

No. 8782. *Lupinus* ^{*concinus* var. *pallidus*} ~~*sp. nov.*~~ ^{*the var.*} ~~*var. nov.*~~ ^{*var. nov.*}

Stems many from the base ascending and spreading so as to form a low crown or mound-like plant. Banner white, dotted in center, its lower margins purplish. Wings ^{only} purple. Keel dull white or yellowish-tinted toward tip, glabrous. Green herb. Sandy

washes.

No. 8783. *Lupinus concinns* Agardh.
var. *occidentii* Det. C. P. Smith



Upper calyx-lip.

It is more deeply cleft than the *sinuatus* between upper and lower lip.

Gray herb.

Sandy washes.



Lower calyx-lip.

Cor. ^{dull} white, the banner purplish tinted on edges, the wings purple flushed above, the keel purple-tinted at apex, glabrous.

No. 8784. *Opuntia parryi* Engelm.

Green Cholla. Branched from base with slender stems 2 to 3 ft. h.

No. 8785. *Opuntia bigelovii* Engelm.

Gray Cholla. Arborescent in type, one main axis, 4 to 7 ft. h.

- No. 8786. *Echinocereus engelmannii* Parry.
 = *Echinocereus* = Santanac Valley
 c. 1100 ft.
 Cylindric cactus branched from the base with beautiful rose-purple fls. and peculiar conspicuous green stigmas. Common. Fls. yellowish.

- No. 8787. *Echinocactus acanthodes* Lem.
 Little Barrel cactus; 20 ridges, 10 in. h. Fls. ^{dull} yellow; fls. purple; stigmas yellow.

- No. 8788. *Opuntia basilaris*
 Flan-slab cactus. Fls. beautiful rose purple. Stigmas white. Fls. purple; anthers yellow. Frequent.

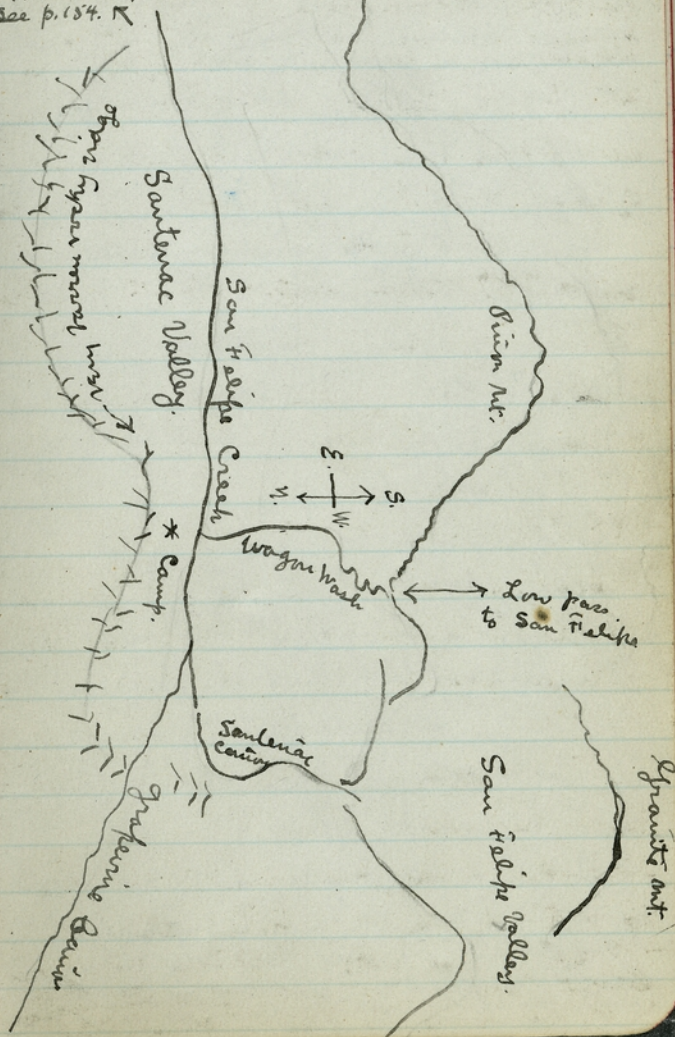
- No. 8789. *Delphinium*

Sandy mesas.

- winter white (see p. 83), occurs in the bed of the San Felipe Creek.
- *Eucelia* (no. 8796) is called by settlers Desert Pine in account of its abundance of resin. They use nothing (cont. p. 152)

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To San Felipe Narrows.
 See p. 154. ↗



else for starting a fire if they can get it. Desert Prospectors say they need not go without a fire on the wettest day if they can get this. It will burn on the wettest days.

I suppose they mean the dead part of the plant.

The plants in the sandy mesa are:
Eucelia (same as no. 5776)

Larrea tridentata var. *glutinosa*.

Gray Cholla

Yucca mohavensis. Its leaves are
fibrous-fringed.

Lotus glaber Greene.

Apocynum deserti

Fourquieria splendens. The green stalks
will not burn and the dead ones
not very remarkably. It is
abundant. There are reddish in-
dividuals.

I have not mentioned *Erodium cicutarium* this trip very much but everywhere on the desert one finds it. Where the sandy granite is very dry it covers the country with small plants; even where desert

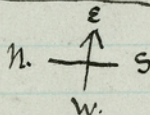
plants (animals) do not get along well.

The Animals at San Felipe Sink.

The mammals and birds come to drink at evening at the water end below mouth of Santanac Cañon. The birds come in troops, all kinds - more kinds of birds than one will see elsewhere at any one point in the desert. The ^{twice} doves come early in large numbers, settling on the tops of the Mesquite ^(Prosopis juliflora) or Smoke bushes or Desert willow ^(Chilopsis saligna), and then fly down to the water settling directly in the ^{shallow} water. They look around a second and then plump their bill into the water up to the eyes and keep it there for as long as one can count ten. It is a satisfaction to see the way they drink and their confidence. The quail are very different. They hover in the bushes, and talk it all over a long while. One or two come out a few feet and run back. Then they talk it all over some more with that chuckling scolding sound when they are in council. This Quail
— cont. p. 155 —

Somewhat flatish topped
prominent mt. to east of valley.

The Narrows.



This valley is a mudish valley 1.2 miles below Yaqui Well. Its vegetation on the floor, consists of *Larrea*, *Agave deserti*, *Hymenoclea salsola*, *Franseria dumosa*, *Houquiera splendens*, *Gray Cholla*, *Striflex polycarpa* (det. a field snap-shot. It had neither fls. nor fruits).

Spying

rough spots

Long rocky ridge very barren. San Felipe Wash.

No. 8790. *Olneya tesota* Gray
Yaqui Well. See, p. 156. c. 900 ft.

cont. from p. 153
says to Mr. Davis, You go out, he says to her, You go. Finally they run down to the water, half way start back, look around, change their mind, rush to the water, stick in their bill, and then up their head and swallow like a chicken. They did not waste any time at the water's edge. They did not step into the water but stood faintly at the edge of the water and then hastened back to the shelter of the bushes to talk it over some more. The humming birds light directly in the water. First he flutters his tail in the water, bathing his hind parts, then he puts in his wings and flutters them in the water thoroughly.

Then he sticks in his head, bathing his fore parts and getting all clean, taking sips of water meantime. Then when he is through he rises into the air 20 feet, and is off horizontally like a bullet, going as far as Piñon Mt. in about a minute. A coyote came down the bank. He did not see me and came across to the water. Just as he put his head down to drink he caught my scent; he threw up his head and was off over a great bush and into the brush in a few great leaps.

He came down the bank unconcerned; across the wash without betraying concern; he had not up to that time come far enough to mind me, but when he put his head down his keen nose got just far enough to get into the wind-current that crossed me. It strikes me that man is a very odorous animal. - Notes by H.A. Outton and W.H. Jepson

We leave the camp below north of Santana
cañon and run easterly, down "stream".
Just above where the Grapewine and San
Felipe meet, the Grapewine Cañon is
distinctly narrowed. Below this it
broadens out somewhat making a nar-
row valley which might be called
Santana Valley. Yagui Wells is a seep-
age spot in the lower part of this valley.
(See Survey Book, p. 42).
A well^{in pit} has been dug here and it is an
obvious camping spot. A small grove of
Ironwood Trees (*Olearya tesota*) marks the spot. They are
fairly large. I measure two as follows:
No. 1. Circ. at 2 ft. = 5'-4"; height 30 ft.
No. 2. Diam. at 1 ft. = 4'-5"; height 32 ft.
They are broad-crowned trees but the
difference of aspect from mesquite is
very pronounced. They have reddish brown
and distinct wrinkles. They present a gray
appearance. Bark on old limbs roughly
fissured longitudinally, ^{dark gray} on branches
smooth, light gray.

Suaeda

, of the same

habit, and 4 to 5 ft. h. as the plant in
the Death Valley region occurs here. It is
the same as the plant at Vallecito and
is neither in flower ^{Prosopis juliflora} nor fruit. Mesquite
occurs here in abundance. *Atriplex can-*
escens apparently, in abundance.

[Wagon Wash. Cont. from p. 143. This
wash, from its junction with the San
Felipe region to the summit of the pass
is about $2\frac{3}{4}$ miles. The lower half
mile is Smoke Bush, ^(Dalea spinosa Gray) very much scattered.
The next $1\frac{1}{2}$ miles is *Hyrtis emoryi*
which is very abundant and gives a
distinct character to this part of the
wash. The next half-mile is Desert-
apricot (no. 8769) which is abundant;
the last $\frac{1}{4}$ mile is no. 8772, *Coleo-*
gynis nanosissima Torr., dominant at very
summit, but not extending down far.
The $\frac{1}{4}$ mile below it is most interesting
for the *Aryzonia* (no. 8775).]

The dominant vegetation of Santana
Valley is indicated on p. 152. In addi-
tion must be noted the Barrel Cactus

of which we took a photo. This individual was 5 ft. high, ^{c. 350 ft.} 1 1/2 ft. diam., had 25-30 ridges.

We pass down into the short narrow gorge locally known as "The Narrows". It were better called San Felipe Narrows, to distinguish from other narrows. Through this ^{gap} San Felipe Creek breaks out into the Colorado desert. On the mesa near the Narrows, after passing thru, we collect.

No. 8791. *Eriogonum reniforme* Torr. & Freeman.
Sandy mesas.

No. 8792. *Eriogonum thomasi* Torr.

With 8791

No. 8793. *L. arizonicus* (Wats.) Wats.
Lupinus sparsiflorus both var. *barbatulus* Thorns.

With 8791.

No. 8794. *Gilia setosissima* Gray.
= *Langloisia*

With 8791.

No. 8795. *Opuntia ramosissima* Engelm.

With 8791. This cactus grew 1 to 2 ft. h.

- Topping a mesa ridge we secure a sudden and delightful view of the snowy tip-top of Mt. San Jacinto, Santa Rosa

is big, nearer us, its long descent runs eastward closing the view for us to the north. Coyote Mt. is a barren but distinct hill at the right of Coyote Cañon mouth and lies well out into the valley of the Borego which is immediately below us, a great flat sink, its west central part covered with a forest of Mesquite.

We run on down a long grade over the mesa to Borego Valley. The first settler's place is Hal Bennis'. His brother Waldo Bennis has also squatted on a claim. We come on thru the Mesquite and run across two cattlemen. When they see we want to talk they ride to meet us across the flat. One is William Stöckin, who tells us the way up to the mouth of Palm Cañon, a great cleft running back into the mountain wall which rises ^{west} so abruptly from Borego Valley floor and to considerable height, about 6000 feet. San Jacinto Mt. is in full view to the left of this gorge. He says there are a thousand

Palms in Palm Cañon and that there are "several" high up in Hell-hole Cañon. When I inquired about Palms in Coyote Cañon he said there were palms in all the cañons where there was water. He says there are comparatively few palms in Thousand Palms Cañon and that he cannot understand why the name should have been given to it and not to Palm Cañon of San Isidro Cañon. He says there are palms in Indian Cañon but does not specify other places. Says there are no palms in Rockhouse Cañon or any of the cañons coming down from the long Santa Rosa desert spur because that is a waterless country.

• No. 8796. *Oligomeris linifolia* McBr.

Borego Valley.

— South of us, now in full and plain view Broadside rises the great bulk of Piñon Mt. On the edge of the desert lies the sandy-white Fish Mt. Across the mouth of the valley east is Borego Butte. North are the ropeless sterile tan hills

called Sheep Hills or Mountain

↑ Sheep

Mountain Sheep.

— Schnoeka ^{the rancher} says he has seen as many as 60 Mountain Sheep at one time in Palm Cañon. They summer on high Isidro and on Santa Rosa Mt. In winter they feed in large numbers on the Sheep Hills. He says further he has seen 5 or 6 antelope in this country eastward in 5 years.

J. McMillen of Warm Valley said Mountain Sheep were found and are found on Piñon Mt.

• No. 8797. *Mimulus bigelovii* Gray, ex. a. l. g. Throat less open than in No. 8681 of Blair Valley.

= *Lanploisia*

• No. 8798. *Gilia matthaei* Gray. Three lobes in lower lip; lip really 3-lobed, the sinuses not as deep as the lateral sinuses (i.e. between upper and lower lips). These lobes are spotted and patterned a

little. Two lobes of upper lip more deeply parted, divergent! At sinuses (base of) in lower lip there is an upstanding scale-like process, small but very distinct!

No. 8799. *Trixis californica* Kellogg.
Low broad bush 1 to 1½ ft. h., the fls.

yellow. This was obtained also at the rocky ravine head of Vallecito. ^{Conf. p. 164.}

No. 8800. *Argythamnia sericeophylla* Gray.
^{= *Ditaxis lanceolata*}

Nodes with many branches, the branches exceedingly interlaced and impracticable to disentangle; also very brittle. Woody distinctly for 1 ft. or 1½ ft.

Bush 1½ ft. h. Fls. monoecious, small. ♂ in small clusters; sepals 5, lanceolate; petals deltoid, acute, clawed, white, 5; stamens about 10, monadelphous; glands 5, yellowish, papillate, set between the petal claws. ♀ fls.

solitary; 3-celled, 3-lobed; styles 3, 2 claff. ^{to an} half-way, the branches divergent. ♀ fls. apparently very few.

Between rocks near cañon bottom,

but on wall.

San Diego Co.

Washington Palms.

Begin about ½ mile from mouth of gorge. In this lower cluster there are about 86 large trees and about 45 small ones. Some of the trees show sprouts from base! The tallest are 45 to 50 ft. h. All have had the watch applied by vandals to their trunk sheath of leaves.

No. 8801. *Puccinia philiberti* Ell. & Ev.

Rust on *Philibertia* stems. Det. W. C. Blasdale.

No. 8802. *Perityle emoryi* ↑ *heterophylla*

Rays white, short.

No. 8803. *Trifolium variegatum* Nutt.

Wet bank of stream.

No. 8804. *Notholaena parryi* Eaton.

This fern grew under great rock in shade.

No. 8805. *Cryptantha barbigera* Greene.

Sandy cañon bottom.

No. 8806. *Solanum douglasii* Donal.

Cor. lobes ovate-lanceolate, white.

Washington Palms

c. 1800 ft.

They grow in the very cañon bottom. A considerable stream flows down the bed, making a roar which in some places ^{nearby} drowns our voices. The cañon walls are abrupt and large boulders lie uncracked, many of them, on the sides and in winter by storm or freezing come down to the bottom. Trees must be damaged in this way sometimes. A granite block weighing forty tons or maybe 80 rests against the trunk of one palm and has but the trunk over quite a bit. The associated species are *Alnus rhombifolia* and *Platanus racemosa*. The true desert species also come up the cañon: *Elytis unguis*, *Salvia juncea*, *Larrea tridentata*, *Sclloperme californica* Bth.

[No. 8799, cont. Marginal fls. changing to white, central ones permanently yellow.]

- No. 8807. *Cryptantha decipiens* Hal.
Sandy bottom.
- No. 8808. *Mirabilis tenuiloba* Wats.
Stems 2 to 3 ft. long, forming a heavy decumbent tangle; stems very brittle; leaves very fleshy and breaking readily from the stems. Fls. white, larger than in *Mirabilis californica*. Rocky wall.
- No. 8809. *Sphaeralcea ambigua* Gray.
Spirical Mallow. Styles purple, 10 or 13; stigmas capitate, purple. Petal claws with ^{dense} tuft of hairs on each side at base, spreading into the intervening orifices between the claws. Stamens tube glabrous. Bushy, 4 ft. h., branched at base but long-stemmed above. Cañon sides.

No. 8810 *Melica frutescens* Scribn.
Many culms, forming a brush. Cañon bottom.

No. 8811. *Horsfordia newberryi* Gray.
5 ft. h. (one stem only) with lateral

- branches mostly $\frac{1}{3}$ way up and above. Not yet in full fl., and only lateral branches taken. Cor. salmon color, ^{greenish} small, its petals roundish, rotate. Styles 10. Stamen tube hispidulose with simple spreading hairs! not glandular. Corolla bottom ^{yellow}. Anthers yellow.
- No. 8812. *Hibiscus denudatus* Benth. Styles 5. Stigmas terminal, densely long-hairy. Anthers brick-red! Stamen tube with very short spreading gland-tipped hairs. Petals dull white, large, - perhaps better, white-tinted faintly with lavender. Corolla bottom. Stigmas white! Styles white.

- No. 8813. *Chilopsis saligna*, here 25 ft. h. Cor. pink-lavender with markings on lower lip and two prominent folds running from petals down the large throat. Tube very short, bearing the stamens, the lower pair longer. Cont. p. 167.
- Desert Lavender, the name for *Hyptis emoryi* by people in Borrego Valley. One woman: "It is just like and has the odor of the Lavender you pay lots of money for on street corners in Los Angeles."
- *Hymenoclea salsola*. It has very heavy stem bases just at or below the

- surface of the sand. These thick pieces persist in the little sandpile after the plant dies and the wind and rain work them out to the surface of the ground more or less. We found they made very hot fire under our camp stove and took fire readily.
- The black quails here go right for our ears mostly. They are a great nuisance but do not bother when the wind is blowing. We had them also at Vallecito.
- Cont. from p. 166. No. 8813. *Chilopsis* short sterile fil. on upper side. Stamens and style glabrous. Stigma 2-lipped. Corollas making a great show on a tree in full bloom. Cor. lobes all more or less eroseolate or rather erose. Calyx 2-lipped. Borrego Valley.
- No. 8814. *Krameria parvifolia* Bth. Rounded or mound-like bush 4 ft. h. and 7 ft. broad. See p. 171.

No. 8815. not used.

- *Gilia schottii*, no. 8820, p. 169.

On looking at my dried spurs, I wonder if the observation as to position of 4 lobes could be erroneous? But evidently I changed it to "lower" in field, as it may be all right. - W.L.G. Mar. 1938.

No. 8816. *Prosopis juliflora* DC. var. ^{Torreyana} ~~glandulosa~~ Torr. var. ^{Torreyana} (Bers.) M. Fern.

[No. 8813. *Philopsis saligna* continued.

Borobas, very showy, the whole tree covered with them. Calyx 2-lipped. Lower pair of stamens larger. All stamens inserted on stamen tube which is very short, the throat being long; upper fifth stamen a mere rudiment and short. Stamens and fil. glabrous. Thirsty palatal ridges running down into throat along stream (living).

No. 8817. *Craton californicus* Mill. Arg. ^{var. tenuis Farg.}
♂ Plants erect, bushy $1\frac{1}{2}$ to 3 ft. high, half to as broad, the slender lead flowering stems of the prev.

ious year persisting. Fls. in close clusters (terminal). Stamens 11, 11,

(tenuis Farg.)

No. 8818. *Craton californicus* Mill. Arg. var.

♀ habit as in ♂, but all the plants noticed at the Palm Cañon apart camp very much smaller than the ♂. Stigmas 3, broad, each cleft into 4 broadly linear lobes. Sandy mesa, common. See p. 170.

No. 8819. *Parosela schottii* Hal.

Gray bush, its stems many, forming a roughly roundish shrub 5 to 7 ft. high. Sandy apart mesa at base of Mt. San Gidrio, Palm Cañon ^{one of the dominants.} See p. 170.

No. 8820. *Gilia schottii* Wats. See p. 169.
4 lobes in lower lip, with 3 processes at the sinuses, one lobe in upper lip. (Discarded, insect damaged)

No. 8821. *Stephanomeria*
Fls. pink. Coarse, branched from base, 3 ft. h. Sandy wash.

Palm Canyon above camp, east
Base Mt. San Geronimo, W. side
Borego Valley. c. 800 ft.

The dominant one, on this sandy wash,
Larrea tridentata var. *glutinosa* Jepson.

Sala (no. 8819) = see below.

Croton (no. 8818)

Hymenoclea salsola

Green Cholla

Parosela (no. 8819). Fls. purple.

Calyx evidently but not strongly
about 10-ribbed, a single row of
4, 5 or 6 glands between the ribs.
Keel broader than wings! Style
a little hairy on upper side.

Glands of calyx tube greenish,
noticeable only under a lens.

= *Eriastrum eremicum* (Jeps.) Mason
no. 8822. *Gilia eremica* (Jepson). *Huegelia*
eremica Jepson.

Fls. light blue, changing darker in dry-
ing. Very common west side of Borego
Valley, sandy mesa; goats do not eat it.

No. 8823. *Compositae*

Common all over the sandy mesa
but not abundant.

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- *Crameria*, no. 8814. ent. Calyx physio-
logically 2-lipped, 4 lobes below, no
lobe above, deep purple inside. Ovary
white hairy with glandular hairs amongst
the white ones, its style bent forward,
curved by the 4 stamens. Opposite
there 4 stamens but on lower side are
3 petal-like fan-shaped deep purple
structures in a row transversely. Their
claws rest on a slipper-like base
which also bears at the same point
the filaments of the stamens, which
curve backward and then upward
and forward paralleling the style
but being above it or on its upper
side. 4 stamens style = 3 petaloid
structures



The stamens arise from the stamens
base and curve in such a way as

to surround the style, 2 above and 2 below, not (as said above) wholly above. On the upper side the bloms are two glands, fan-shaped or rhomboidal, 4-grooved on lower side, purple, about as long as wide. They are not at all alike the structures of similar position described for no. 8539 at Vallecito.

- We journeyed ^{one} from Schinoka ranch northwesterly to the mouth of Coyote Creek ^{of Borrego Valley}. The mesa plain is covered with:-
- Persea tridentata* var. *glutinosa*
 - Gray Cholla
 - Franseria dumosa*
 - Fourquerea splendens*, which becomes more nearly a forest as we near Coyote Creek than I have seen it elsewhere
 - Green Cholla.

We go into camp at the very edge of the mesa where it breaks down into the great flood bed of Coyote Creek. At this point in the bed is a ranch owned by one Beatty who has a fine lot of alfalfa irrigated by water from Coyote Creek. The wind blows a high gale and as I try to go to sleep the sighing of the wind thru the Acotillas is like the roar of wind in a forest in a way but with a peculiar rustling sound. That is uncanny.

The next morning we find thru the sandy bottom of Coyote Creek some five or six miles to Collins Valley, passing thru the narrow Coyote Creek is a fine stream for the desert, 8 feet wide (or more in places) and 2 to 4 inches deep and running rather rapidly. We get into a jungle of willows in the narrow and lower part of Collins Valley. We find a cabin in a moist swale, under Scurbean trees, near

which is a fine bubbling stream which throws out a volume of bubbles every 30 seconds. We flood across the sand of Collins Valley. It is covered with a vegetation of *Larrea*, Gray Cholla, *Striflex polycarpa*, winter white

- The vegetation around the Bubbling ~~is~~ is rank; tall Screw Bean; Arrow-wood 6 to 10 ft. h.; a showy strip of *Grapemes* along the rocky bank of the cienega bordering its southerly side; *Distichlis spicata* forming smooth close lawns in little open spots; water-cress rank in the water; *Hydrocotyle* (no.); *Spinum graveolans*? bare (no.); *Arenopsis californica*; *Prosopis glandulosa*, *Baccharis* no. 8824. ^{*pubiflora* var.}

- Collins Valley is a triangle. We flood across the sandy wash to the sw. corner and enter Indian Cañon. Over this wash, some 3 or 4 miles, we pass thru a continuous association of two species: *Larrea tridentata* and *Hymenoclea salsola*. Both species are ranker and greener and lusher than even *Sesuvium* where, especially the latter. Cont. p. 176

Indian cañon has the following.

Zizyphus Parryi

White Sage (*Salvia spicosa* Jepson).

Rhus ovata

Rhus trilobata, ^{in fruit} *Platanus racemosa*

Chilopsis saligna Don.

Tamiferns

Desert Apricot (*Brunia fremontii* Wats).

Agave deserti;

Green Cholla

Eriogonum polifolium

Pentstemon antirrhinoides Bth.

Eucelia (white-leaved species of the cañon walls.

Lotus glaber Greene.

Lotus (erect yellow-flowered sp. of the south end San Felipe Valley =

see other sp. in numbered spec. list.

Nolina Parryi!

Populus fremontii, lower down

Acacia greggii Gray.

Beloperone californica Bth.

-Cont. from bottom p. 174. This association as I say had little else in it of perennials, even in a secondary way, a little *Erigeron annuus* and on the lower part nearest Bubbling Spring *Atriplex polycarpa* (apparently that species).

Indian Canyons.

-*Heloperone californica*, shrubby eaten down by cattle! Now in fl.

✓ No. 8824. *Baccharis glutinosa* Pers.?
Collins Valley. Cienega.

✓ No. 8825. *Boileya pauciradiata*
Beatty Ranch, Borego Valley.

✓ No. 8826. *Eschscholtzia caespitosa* Benth.
with 8825.

✓ No. 8827. *Pluchea sericea* (Nutt.) Cov.
Narrow below Collins Valley.

✓ No. 8828. *Lepidium lasiocarpum* Nutt.
with 8827.

✓ No. 8829. *Plantago*
with 8827.

✓ No. 8830. *Achyrachia cooperi* T. & G.

Sandy mesa. Narrows below Collins Valley

✓ No. 8831. *Cryptantha micrantha* T. & G.
Sandy mesa. Narrows below Collins Valley.

These thick low round-headed plants suggest Baobab tree pictures. They are very dark green. - *Evansia micrantha* Greene.

✓ No. 8832. *Palafoxia linearis* Lag.

Narrows below Collins Valley, sandy wash.

✓ No. 8833. *Mimulus guttatus* DC. Det. A. L. G.

Bubbling Spring, Collins Valley. Var. *grandis* Greene. (with 8834)

✓ No. 8834. *Scirpus olneyi* Gray.

Stems sharply triangular. Bubbling Spr.

✓ No. 8835. *Lemna*

Bubbling Spr.

✓ No. 8836. *Hydrocotyle ranunculoides* L. f.

with 8834.

✓ No. 8837. *Vitis girdiana* Munson

with 8834.

✓ No. 8838. *Malacothrix glabata*

Collins Valley, sandy wash.

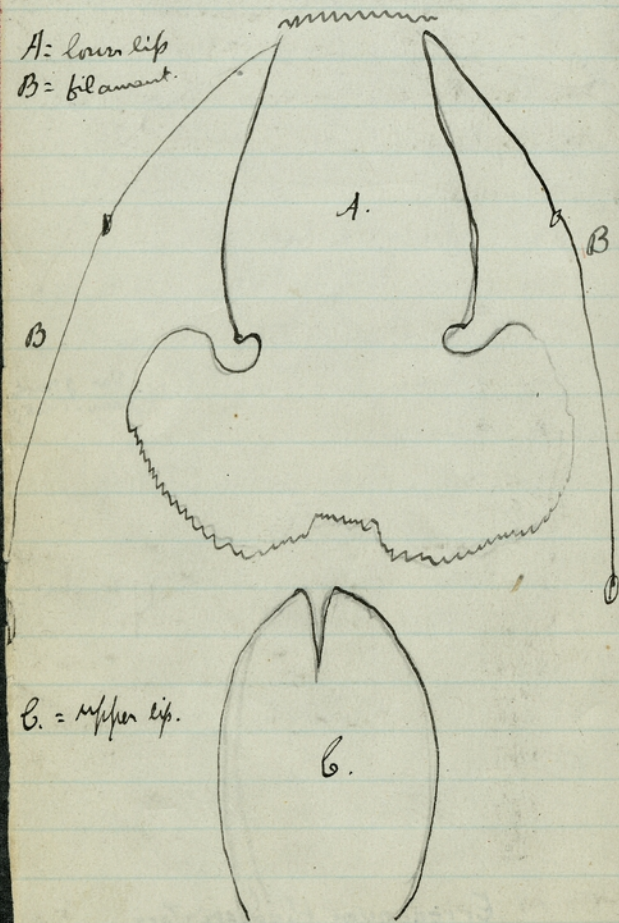
✓ No. 8839. *Eriogonum thurberi* Torr.

with 8838.

- *Salvia*, no. 8847. See p. 182.

A = lower lip

B = filament.



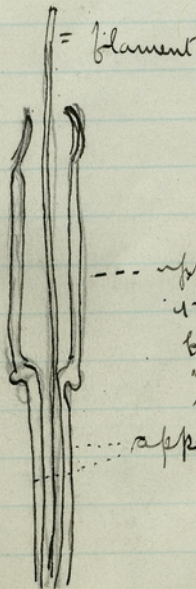
B. = upper lip.

28 Apr. 1920

- Going toward Indian Cañon across Collins valley from Butbling Spr., a great one with truncated summit; truncated horizontally, is exceedingly prominent amongst the peaks that rise up above the mouth of the cañon. See p. 180.

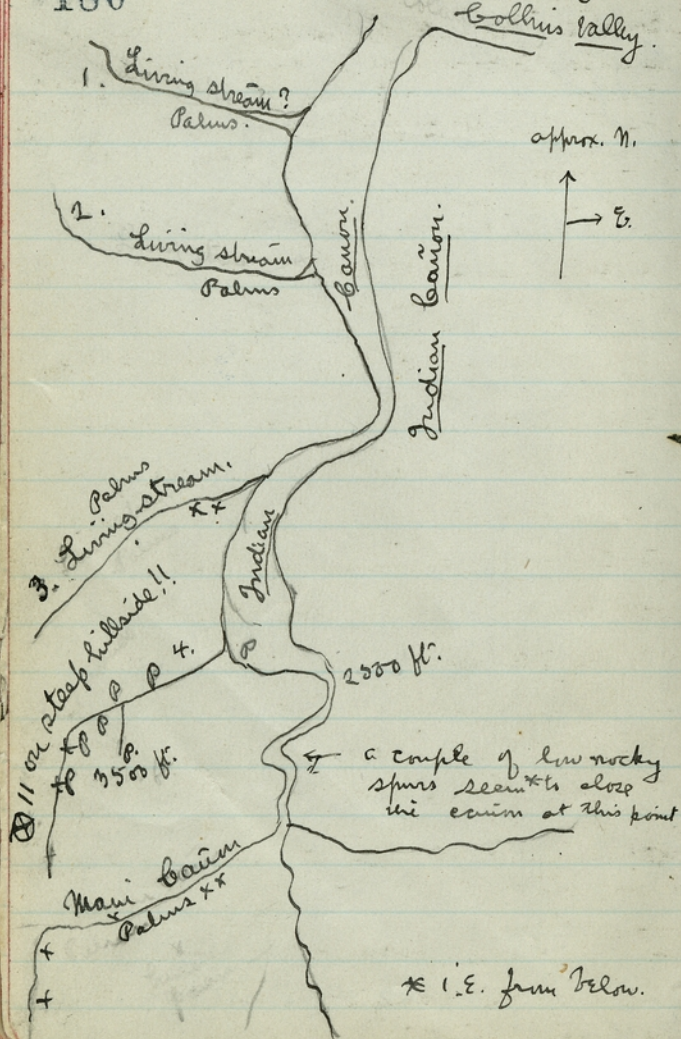
[No. 8852. *Phacelia*. See p. 182]

Rocky hillside.



--- upper portion of appendage -
it ends above in a short
bristle-like tooth which
is quite free and points
in behind the filament, its
apex approx-
imating the
apex of its
mate.

Cor. blue, its throat → irregularly trans-
lucent.



* i.e. from below.

* We climbed up Cañon No. 4. It was very steep and its bottom was a jungle of willows, rushes, grasses and in the lower part mesquite. It was very difficult to fight down this and over the large boulders in the bottom which had come down from the steep walls. Away up on the west wall of this cañon, high up, on the sheer wall, is a little cañon, with 11 or 12 palms in a cluster. This is the first time that I have seen them on a cañon wall. Alt. about 3500 ft. At the foot of this cañon are *Platanus racemosa* in a tiny grove, with a palm set in them!

- As we passed cañon no. 3 we could see palms in it. We saw palms in no. 2, and apparently palms in no. 1 up on a hillside at mouth of Cañon, to left.

- At the northwesterly angle of Collins Valley is a low gap, the way out to Cochinita Valley, and just this side of it is a great cañon with broad wash = Thousand Palms Cañon. We did not go into it.

* Greasewood formed an important part of the tangle with its stringers. One of these 1 in. diam. and 30 ft. long.

- No. 8840. *Gilia* ^{*Linanthus*} *lemonii* Gray.
Sandy wash. Collins Valley.
No. 8841. *Gilia* ^{*scellata* Heller} *latiflora* Gray.
Fls. blue-purple. With 8840.
No. 8842.
With 8840.
No. 8843. *Dicentra* *chrysantha* (H. & A.)
Stems 80 to 90, forming a grand bouquet 4 ft. h. and 5 ft. broad! Sandy wash, Indian Cañon, lower part, c. 1600 ft.
No. 8844. *Centaureium* *cythraea* *crumena* Gray.
Moist bottom, Indian Cañon.
No. 8845. *Pentstemon* *clelandii* Gray.
Cor. crimson! very beautiful color.
Cor. lobes roundish! equal. Ran across a fine colony of this on a sharp cañon wall in cañon no. 4. (See map, p. 180)
No. 8846. *Lobelia* ^{*L. heermannii*} *eremophora* Greene var. *heermannii* Olt.
Side of moist bottom, cañon no. 4.
No. 8847. *Salvia* *eremostachys* Jepson.
Rocky cañon wall, northw. slopes.
Stems 2 to 2 1/2 ft. h. See p. 178.

- No. 8848. *Mimulus* *serotinus* Greene.
Fls. much dilated downward, each bearing a nectary pit at base! Rocky cañon walls, north slopes.
8848a. *Mammillaria tetracistra* Engelm.
No. 8849. *Plantago*
With 8848
No. 8850. *Pectocarya* *setosa* Gray.
With 8848.
No. 8851. *Astragalus* ^{*didymocarpus* H. & A. var.} *dispermus* (Gray) S. & P.
No. 8851a. *Astragalus* *acutistria* Nutt.
No. 8852. *Phacelia* *cryptantha* Greene.
See p. 179. With 8848.
No. 8853. *Cheilanthes* *covillei* Maxson.
This fern grew on rocky slope, with 8848.
No. 8854.
This cactus grew with 8848.
No. 8855. *Crossosoma* *bigelovii* Wats.
Erect bush 3 ft. h. Coll. Sutton. Upper Indian Cañon.
- Ocotillo (*Fouquieria splendens*) is used for fence posts, mangers, corrals etc. at Beatty ranch. Tall poles are used for the sides of a ramada. At Schuoka ranch it was used for a living fence.

No. 8856. ~~Corydalis~~ ^{Dudleya} lanceolata ^{Bret. + Rose}
with 8848. This is called Life-Saver
on the desert, since its leaves are
chewed to assuage thirst.

No. 8857. *Arctostaphylos glauca* Tindl.
c. 3000 ft. high up Indian cañon. Dutton.

No. 8858. *Collinsia davidsonii* Parish.
moist bottom. Only one individual seen.

No. 8859. *Mirabilis*
Fls. white. Bush 2 ft. h.

No. 8860. *Eriophyllum*
1 1/4 ft. h. to 1 1/2 ft.

No. 8861. *Eriodictyon trichocalyx* Hel.
Common in patches at middle of main
cañon.

No. 8862. *Haplopappus linearifolius* DC.
Bush 3 ft. h. Rays yellow.

No. 8863. *Aphyllon*
Sandy bottom.

No. 8864.

One of the abundant plants at
Bubbling Spring, Collins Valley, 2

to 4 ft. high. Same thing at Vallecito
and Yagui Well.

No. 8865. *Elymus condensatus* Presl.

This cane grew on the edge of the
ciénega at Bubble Spr., Collins Valley,
to a height of 6 to 8 ft.

No. 8866. *Pentstemon antirrhinoides* Bth.
Colony of it, 6 to 7 ft. h., Indian Cañon.

It is a weary walk, way into the
night, back to our camp, on the mesa opp.
Coyote Mt. Sand, sand, ceaseless sand.
Dutton nearly slipped on a sidewinder,
in the trail. Its curious sidewise
movement Mr. Sidewinder demonstrated
for us and then we dispatched him.
— The Desert Rat, Gail Mathewy, says:
There are palms in Alder Cañon which
is beyond Thousand Palms Cañon, up
Indian Cañon the palms are only in the
upper part, 2 or 3 in a place in little
ciénegas in the bottom. In the last of
the side cañons (my no. 4) the largest
bunch of palms may be seen high

No. 8867. ^{= Eremalche} *Malvastrum rotundifolium* Gray.
Borego Valley, sandy mesa.

No. 8868.

With 8867. Composite.

No. 8869. *Chaenactis caespiticia* Gray
(det.) (discarded 4/13/55) ^{insect-damaged}
This is the most common annual
at this time over Borego Valley;
sandy mesas and washes.

cont. from p. 185:

on the mountain slope in a very
steep place. [This is the remarkable
bunch which I have previously
described as occurring in the
lateral
cañon we ascended]

Buttm says: One-fourth mile from
the double havers in the cañon there
are 6 palms set so orderly in
the bottom as if planted and a
nice little bit of salt-grass lawn
in front of them.

- We break camp, after a long morn-
ing period of drying plants, rearranging
specimens collected the day before or
rather checking them up, and head
across the hot mesa, down its graded
slope, for miles and miles thru sand
to Schnoka's place. About half-way
down from Beatty Ranch, the *Atriplex*
polycarpa, no. 8870, comes in and
is a dominant for many miles,
often in company with *Larrea tri-*
dentata. This happens after the
Opuntia disappears. There are
about 300 acres* south of Schnoka's
place that is pure no. 8870. Cont. p. 185.

No. 8870. *Atriplex***

Schnoka calls this Horse Brush, or "Lit-
-tle Hop" in contradistinction to Big Hop
or *Atriplex canescens*. Schnoka Ranch.

No. 8871. ^{= Eremalche} *Malvastrum rotundifolium* Gray.
Branching annual, 1½ to 2 ft. h. Beatty
Ranch, mouth of Coyote Creek near Coyote
mtn.

* nearer 600 or 1000 ** See above.

-Cult. no. 8870. Bushes 1 to 3 ft. h. and $1\frac{1}{2}$ to 4 or 5 ft. broad.

No. 8872. (Discarded, insect damaged)

Washes, a characteristic wash plant.

$1\frac{1}{2}$ to 3 ft. h., branching, annual. Rays light yellow, changing to tuckskin color and closely reflexed.

No. 8873. *Lycium brevipes* Bth.

Leaves very large, larger than in any shrub species I know, and very fleshy.

The leaves are plane brown, though thick and not jug-shaped as in *L. andersonii*. Cor. lavender with white

"eye" or throat; tube short. Berry

red. Very thorny shrub, densely branched, roundish, 3 to 5 ft. h. and 4 to 7 ft.

broad. Branchlets very divaricate.

No. 8874. *Refinesquia* (Discarded, insect damaged)

Wash.

No. 8875. *Dithyrea californica* Harv.

Wash

No. 8876. *Pilostrophe cooperi*

Annual; many stems from base, form-

c. 500 ft.

29 Apr. 1920. San Diego 189

ing a fleshy plant $1\frac{1}{2}$ to 2 ft. h. wash.
No. 8877. *Eriogonum trichopes*
wash.

No. 8878. *Eriogonum thomasi* Torr.
Wash.

No. 8879. *Mentzelia albicaulis* Dougl.
Wash.

No. 8880. *Stillingia spinulosa* Torr.

Wash, characteristic "wash" plant. Stems many from the base, forming a broad rounded plant. Inflorescences unisexual.

 Stamens. ♂ spikes composed of fls. with 2 fore and aft bractlets in axil of a bract, the 2 stamens diverging.

Ovary strongly 3-lobed, with 3 slender styles. Axil usually with 3 ovaries and 1 spike. Bracts and leaves pectinately toothed.

No. 8881. *Eriogonum thomasi* Torr.
Wash

No. 8882. *Mentzelia involucrata* Wats.

Wash. Single individual seen. Cor. membrane colored, obovate acute lobes;

stamens: outer with ligulate filaments ending above in a lanceolate (cont. 190)

- No. 8883. *Astragalus agninus* Jepson.
Wash. stems decumbent. Fls. purple.
- No. 8884. *Oenothera scapoidea* T. & G.
Wash.
- No. 8885. *Balandrinia ambigua* (Wats.)
Roots very fleshy + carrot-like. Dry hills. See p. 198.
- No. 8886. *Oligomeris linifolia* McBr.
With 8885, the only plant with it.
- No. 8887. *Gilia latifolia* Wats.
Wash. Cor. red. $\frac{1}{2}$ mi. S of Borego Spr.
Cor. lobes ovate, acute; stamens 5, very unequal; style 1, stigmas 2. Anthers white.
Throat and tube of cor. white.
- No. 8888. *Astragalus limatus* ^{as *A. crataegariae* (Benth.) Gray} Sheld.
Wash. with 8887. Abundant at this spot. Corolla purple; banner slightly but distinctly notched, its sides turned backward, its center whitish with some purple lines.

- Cont. 8882. tooth on each side of the filament. Flowers with 3 membranous bracts at base, their margins lacinate.

- No. 8889. *Gilia Langloisia setosissima* (T. & G.) Greene
Wash. with 8887. Fls. lavender blue.
- No. 8890. *Lepidium lasiocarpum* Nutt.
Wash. Borego Spr.
- No. 8891. *Dalea. Parosela amaryi* Hel.
Stems many from base. Wash. Not yet in fl. Borego Spr.
- No. 8892. *Plantago*
Only individual seen. Wash. Borego Spr.
- No. 8893. *Achyrachia cooperi* T. & G.
Wash. Borego Spr.
- No. 8894. *Isomeris arborea* Nutt.
Fls. deep yellow. Bank, wash. $\frac{1}{2}$ mi. east of Borego.
- No. 8895. *Balandrinia ambigua* (Wats.) Howell
Sometimes 2 ft. broad. Prostrate or procumbent in the washes. Very very, excessively fleshy. Characteristic wash plant.

- Cont. no. 8873. Fils. inserted at summit of tube, thickened at that point, the adaxial ridge running down tube below the thickening. ↑ i.e. the filaments, thickened point hairy!! making an obviously hairy area on looking down into tube with lens.

No. 8896. *Asclepias crivcarpa* Bth.
Wash; characteristic wash plant. 10 mi.
E. of Borego Spr. Hood truncate horiz.
outally; horn arising from base, at
top of hood bent forward, its curved tip
inserted in center of stigmatic disk!! fls.
dull white.

No. 8897. *Oenothera tischbalyi* Nutt.
Stems several, one central one, the
others rising from the root-crown
and forming an ascending circle
about the central one. Wash.
Fls. white.

(Discarded)

No. 8898. *Chorizanthe brevicornu*

Joints very fragile Wash. Borego Sp.
Proothamnus (Det. R.C. Barneby, 1965)

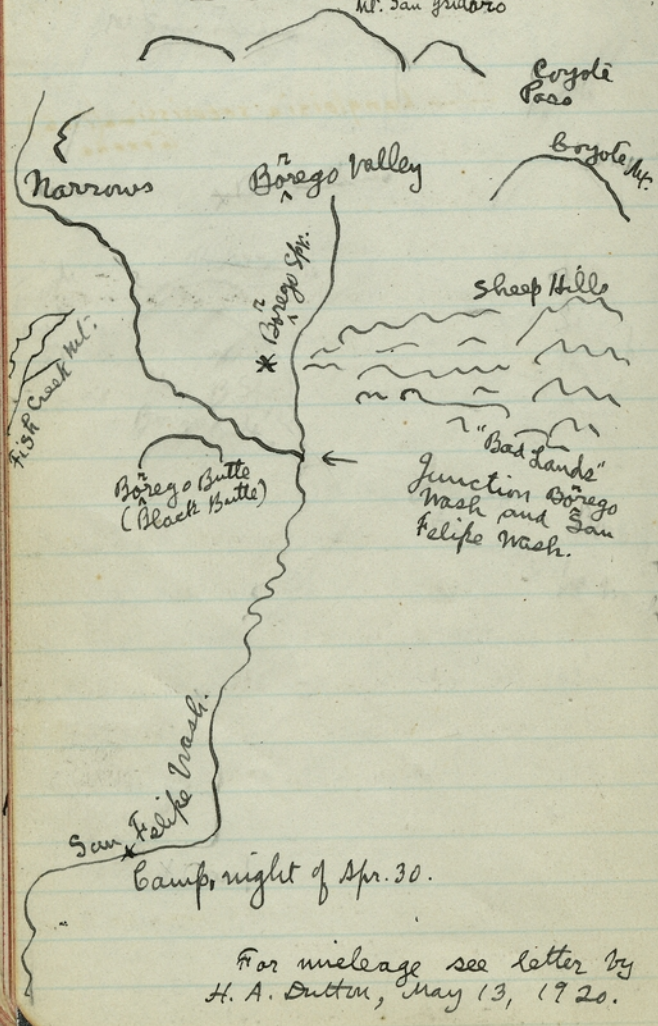
No. 8899. *Parosela emoryi* (Gray) Hel.
Var. *emoryi*
Wings pubescent on lower side. Wings
and keel longer than banner.

- Nos. 8887 to 8896, except as noted,
were collected at junction Borego
Wash and San Felipe Wash, 2 1/2

miles east of Borego Spr.

- We go easterly down the wash of San
Felipe. After about 10 miles the going
is better. First ten miles very much
sand and often getting stalled or
partially. The wind blows the sand
in the track and I find it necessary
to keep out of the track of previous
machines. The wash keeps bending
southeastly and finally turns about
south into a distinct creek bed. Here
we camp under a low bank crowned by
a thick growth of *Chilopsis saligna*.*
A coyote winds us the next morning
while he is out patrolling and
sends up a chorus of derisive
howls in various trebles and falsetts.
The next morning we go on down the
wash and find after 6 or 7 miles
Cont. p. 196

(Cont. p. 196.)
* A large moth which I mistook at
first for a hummingbird visits the
flowers after sundown and doubtless
thru the night. Movements exceedingly rapid.



For mileage see letter by
H. A. Dutton, May 13, 1920.

No. 8900. *Eleonella obtusifolia* Torr. & Frem.

No. 8901. *Gilia Langloisia setosissima* (T. & G.) Greene

Sandy wash.

No. 8902. Plantago

San Felipe Wash

No. 8903. *Oenothera scapoides* T. & G.

Bank of the San Felipe Wash

No. 8904. *Eucumbita palmata* Wats.
with 8903.

No. 8905. (Discarded, insect damaged)

Characteristic wash plant. Found all
the way to Harper Well also.

No. 8906. *Goldenia palmeri* Gray.
Stems several from a deep-seated per-
ennial root, forming a spreading
very low flat-topped plant. Harper
Well, Imperial Co.

No. 8907. *Frauseria dimorsa* Gray ex Torr.
McLain Spr., Imperial Co.

No. 8908. *Petalonyx pluribor* Gray.
McLain Spr., Imperial Co.

San Felipe Wash, 30 Apr. 1920.

that we are lost in an extensive
area of sand-hills topped by scrub
with intervening washes and some
troublesome barrancas. After much
lateral scouting we go back three
miles and scout laterally, both
sides, again. This time we pick
up the road some distance to
the south and make over to it.
This Borego Valley road soon joins
the road coming from San Felipe
Narrows. At this point is a signpost

→ Yaqui Well 15 mi.
Warner Spr. 46 mi.
→ Borego Sp. 18 mi.
Borego Valley, 21 mi.
← Harper Well, 8 mi.
Kane Spr. 12 mi.
Brawley, 36 mi.
Mecca, 52 mi.

We reach Harper Well over a good
road. Cont page 199.

- Borego Spring is situated on the
southerly side of the Borego Wash at
a point where the low hills approach
closely to the wash from either side.
The "spring" itself is small, and
does not flow. A barrel has been
set about it. On top the barrel is a
cover with a heavy stone weight to
prevent animals from ruining it.
This cover is 2 feet or so below
the general surface. One cannot
see the spring as the cabin near it
from the road which passes near
the U.S. Geological Survey sign
post, the post being on the point
of the low hills on the north side
of the wash. A wagon road leads
from the main road across the
wash to the spring which is in
a little grove of mesquite-trees.
[If I remember rightly no. 8612
was found here
as in all alkaline moist areas.]

I take it to be the same as 8864.

[No. 8885. The carrot-like roots in drying have become very slender and give no indication of their real thickness when fresh. The fls. were white and petals very small. The leaves were very succulent, ^{always} as thick as broad. The stems also very succulent.]
 Cont. from p. 190.

- The Spanish Dict. says Borrego; the U.S. Topographic Map Borego. I follow the former.

- *Ceanothus divaricatus* Nutt. Cont. from p. 21. This is my var. *laetiflorus*.

- *Thysanocarpus laciniatus* var. *eremicola* Jepson. = no. 8692. which see.

Early Production of a Single Flower 198a
 or head, followed by abundant proliferous flowering.

- *Layia*, no. 8724 (see p. 113).

No. 8765

The early head is produced on a very short central axis. After this the regular flowering on prostrate proliferous branches begins.

- No. 8765?

Prostrate white-fluid composite of washes.

The numbers below were given to spms. from Vallecito, ^{not numbered in the field}
 1890-1920. C. 1600 ft.

No. 8909.

Vallecito, H.A. Sutton.

San Diego Co.

No. 8910. *Lupinus excubitus* Jones
 var. *Valleii* E.A. Sn.
 "Large bush", Vallecito, H.A. Sutton

No. 8911. *Echechocholtzia minutiflora* Wats.
 Vallecito, H.A. Sutton brought this into camp.
 No. 8912. *Dithyrea californica* Harv.

Vallecito

No. 8913. *Lupinus* ^{*Lupinus*} ~~*Lupinus*~~ *lammii* Gray.
 Vallecito. Collected 8606.

No. 8914.

Vallecito.

198^b.Species of wide Distribution.

- *Orthocarpus purpurascens* - found in Blair Valley, upper Mason Valley, out to the San Diego coast and thence n.
- *Salvia columbaria*, common throughout the South Coast ranges and down into San Diego Co., thence out into the San Felipe Valley, Vallecito, just as common at Vallecito practically as elsewhere.
- *Salvia cordnacea* - this is not as common as *S. columbaria* in general, nor does it seem to extend so widely. ^{It is in} Mason Valley, Blair Valley, San Felipe Valley and out towards the San Diego coast.
- *Brickellia capitata*. Occurs east side of the main range but rare: Blair Valley; Mason Valley. Not noticed in Vallecito.
- *Scrophularia californica*. Found at Grapevine Spring.

Cont: from * p. 193.

198c.

We had a hard time with sand. A rain which fell some weeks ago crusted over the sandy wash and if I drove fast enough the wheels did not break through. It was like skating on thin ice. Occasionally the crust was too thin and down we'd go and have to cut brush and push ^{it} under the wheels to get out again. It was very laborious. Of course if we stopped to botanize, then the car would break through the crust. At the night camp of Apr. 30 - see p. 194 - I laid out my sleeping bag in the sandy wash under the lee of a little bank two or three feet high on which were a clump of *Chilopsis saligna* in full bloom. As I lie in bed I see huge moths playing around the large corollas. It is a wonderful sight and I think that I must have a specimen of these wonderful visitors to the flowers of the Desert Willow. In the moonlight the moths are very beautiful. So I must catch a specimen. My next conscious movement is to find the sun shining in my face over the eastern plain. It is morning! We had had such a hard

198d.

day that suddenly sleep the cords of my body untied, and I knew nothing more until the opportunity to capture a moth was far past.

— La Puerta. For some reason, from manuscript notes of T. Brandegee if I remember, or in some other way I got the idea that "La Puerta" was Box Canyon, opening into Mason Valley (a wagon trail comes down it from Blair Valley). This idea must be entirely erroneous, since I now find by the San Diego County Map of the Southern California Automobile Club that the feature at head of the Vallinto (see pp. 72-76 ante) described as the "rocky travers" must be "La Puerta", since the "new-made road" "up a grade" (p. 78 ante) is marked La Puerta grade on the map. And it is a most fitting name for this rocky travers or at least was until spoiled by road-making.

199

Changes in Aspect or Habit due to Situation, Soil, Exposure, Life History Stage.

Encelia, n. Its young leaves whitish gray; its older leaves light green. A matter of pubescence.

Kane Spring signpost:

McLain Spr., 14 mi.

Fish Spr., 25 mi

out from ^{p. 176} from Harper Well, which is artesian, the water rising to the surface, we go on to Kane Spr. where our road joins the road from Imperial Valley to Mecca and Indio. There we turn northwesterly.

The vegetation of this great plain and the San Felipe Wash is, *Mex. junta*, *Prosopis juliflora*, *Eragrostis*, *Hymenoclea*

salsola, *Oligomeris*

The latter is the most widely distributed annual of the plain

at this time. There has been no cactus at all for some time - not since the west side of Borrego Valley to speak of and none at all in the undulating plains of the Colorado Desert. *Prosopis glandulosa* ^(= juliflora) occurs at Harper Well and Oligomeris.

Between Kane Spring and the desert point of the Santa Rosa Mts. the vegetation is very uniform as to species. It consists chiefly of Smoke-bush, *Parosela spinosa* Nutt., *Franseria dumosa* and Palo Verde (*Cercidium toreyanum*). *Oligomeris subulata* sometimes occurs.

We proceed rapidly over this part of our journey. The wind blowing a high gale and loaded with sharp sand particles. After various difficulties and stops on the

- J. A. Ream, Warner Spro., - associated with Col. Ed. Fletcher of San Diego in road building plans, S. San Diego Co.
- Herbert H. Steinn, San Felipe Valley, in whose cabin we slept one cold night.
- James McMullen, Mason Valley, San Felipe P.O.
- McKane, cattleman in Mason Valley.
- Bernardo Segundo, Ure-ist-um, name of his people, Warner Spro.
- Fleming, San Diego. Very much interested in botany. Name given me by J. A. Ream.
- William Schötker, Borrego Valley, Verruga P.O.
- "Doc" Beatty, Borrego Valley, Verruga P.O.
- Gail Mathoney, Desert Rat, Borrego Spro.
- Fletcher, Col. Ed., the "Pos-Bah" of San Diego Co.

road we camp within 4 miles of Mecca. Cont. vol. 38, p. 1.

- cf. p. 110 and elsewhere ante.

- La Puerta. Having been in Mason Valley it seemed odd to me that I found it difficult to place "La Puerta". The replies which I received from various desert travelers did not enlighten me. The application of the name is perfectly clear from the account of Parish (Pl. World, 19:76). La Puerta is Box Cañon, the name I use in this vol. (pages 88, 89 and elsewhere ante). La Puerta Valley is Mason Valley (p. 80 and elsewhere ante). I had imagined that La Puerta was between Mason Valley and Banner on the direct route (see map San Diego Co., into Club S. Cal.), that is Rodriguez Cañon, but not so, if Parish is correct, as I have no doubt he is. La Puerta is used by the older collectors and its exact situation it is well to know. Parish does not mention Blair Valley nor describe it. It is likely he regarded it as part (lower) of San Felipe Valley.

no. 1. ~~Warner Ranch~~

no. 2. ~~Sumner - 12 ft. 6 in.~~

no. 3.

no. 4.

no. 5.

no. 6. Mason Valley, Hymenoclea
Agave Schottii, Geosati. Bud
Barbosa (no.), Eury. chloro
(no.), Salvia cuneata

See Mason Valley nos.

Spore no. 3

no. 1 - ~~Upper San Felipe - Linn
Oak, catched in mesa slope, above
dense shrubland covered by
cynfers (Fouquieria sp.)
phlo. & Eucalyptus (white leaves)
disturbed - Chat. tharman
Ranch.~~

no. 2. ~~Camp at San Felipe~~

no. 3. ~~Bismaga 5 ft. 4 in. 18 in
dram 25-30 wgs~~

~~Agave, F. amara, adumata
A. amara polytricha~~

no. 5. ~~Blair Cañon, 12 ft. 6 in. 18 in
dist. with 10 ft. 6 in. 18 in~~

203.

Field America.

- These Calif. - Campo.

- ? Whipping Grass.

- *Eucalyptus viscida* Camps. Root unknown.- *Palmetto* Spr? *Palmito*?- *Grapes* Spr. Ironwood will- *Borrage* Spr. = ? *Sambucus* will.- *Agave deserti* *A. consociata*- *Lycium Fremontii* - Split mt.- *Ayenia pusilla*- *Astragalus lentiginosus* var.
Borreglaenus Jones.- *Solanum tenuilobatum* - Carrizo- *Pilosyles thurberi* Went to Carrizo
River Ranch at Thompson Ranch,

8 mi. N.W. of Imperial, last ranch met

Mesa on which Superstition mt. is

located but many miles from it.

From ranch house went due S. toward

Mesa, after reaching last ditch angled

off toward N.W. over edge of mesa.

About 1 mi. from ranch house

found a blue-fld silky-white

Dalea (reasonably pure it was a*Dalea*) + on it - colonies of whattook to be *Pilosyles thurberi* -

J. C. Bridwell in litt 1944